

SEA ENVIRONMENTAL REPORT

FOR

PROPOSED AMENDMENT No. 2 OF THE CALLAN LOCAL AREA PLAN 2009 - 2020

JANUARY 2016

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List of Abbreviations

AA	Appropriate Assessment
CSO	Central Statistics Office
DAHG	Department of Arts, Heritage and the Gaeltacht
DCENR	Department of Communications, Energy and Natural Resources
DEHLG	Department of the Environment, Heritage and Local Government
DECLG	Department of the Environment, Community and Local Government
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
EU	European Union
GSI	Geological Survey of Ireland
NHA	Natural Heritage Area
NIAH	National Inventory of Architectural Heritage
RBD	River Basin District
RMP	Record of Monuments and Places
RPS	Record of Protected Structures
RPGs	Regional Planning Guidelines
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SEO	Strategic Environmental Objective
SI No.	Statutory Instrument Number
SPA	Special Protection Area
WFD	Water Framework Directive

Glossary

Appropriate Assessment

The obligation to undertake Appropriate Assessment derives from Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC. AA is a focused and detailed impact assessment of the implications of a strategic action or project, alone and in combination with other strategic actions and projects, on the integrity of a Natura 2000 site in view of its conservation objectives.

Biodiversity and Flora and Fauna

Biodiversity is the variability among living organisms from all sources including inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems' (United Nations Convention on Biological Diversity 1992).

Flora is all of the plants found in a given area.

Fauna is all of the animals found in a given area.

Biotic Index Values (Q Values)

The Biotic Index Values, or Q values, are assigned to rivers in accordance with biological monitoring of surface waters - low Q ratings, as low as Q1, are indicative of low biodiversity and polluted waters, and high Q ratings, as high as Q5, are indicative of high biodiversity and unpolluted waters. Good status as defined by the Water Framework Directive equates to approximately Q4 in the national scheme of biological classification of rivers as set out by the Environmental Protection Agency.

Environmental Problems

Annex I of Directive 2001/42/EC of the European Parliament and of the Council of Ministers, of 27th June 2001, on the assessment of the effects of certain Plans and programmes on the environment (the Strategic Environmental Assessment Directive) requires that information is provided on 'any existing environmental problems which are relevant to the plan or programme', thus, helping to ensure that the proposed strategic action does not make existing environmental problems worse.

Environmental problems arise where there is a conflict between current environmental conditions and ideal targets. If environmental problems are identified at the outset they can help focus attention on important issues and geographical areas where environmental effects of the plan or programme may be likely.

Environmental Vectors

Environmental vectors are environmental components, such as air, water or soil, through which contaminants or pollutants, which have the potential to cause harm, can be transported so that they come into contact with human beings.

Mitigate

To make or become less severe or harsh.

Mitigation Measures

Mitigation measures are measures envisaged to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing a human action, be it a plan, programme or project. Mitigation involves ameliorating significant negative effects. Where there are significant negative effects, consideration should be given in the first instance to preventing such effects or, where this is not possible, to lessening or offsetting those effects. Mitigation measures can be roughly divided into those that: avoid effects; reduce the magnitude or extent, probability and/or severity of effects; repair effects after they have occurred; and compensate for effects, balancing out negative impacts with other positive ones.

Protected Structure

Protected Structure is the term used in the Planning and Development Act 2000 as amended to define a structure included by a planning authority in its Record of Protected Structures. Such a structure shall not be altered or demolished in whole or part without obtaining planning permission or confirmation from the planning authority that the part of the structure to be altered is not protected.

Recorded Monument

A monument included in the list and marked on the map which comprises the Record of Monuments and Places that is set out County by County under Section 12 of the National Monuments (Amendment) Act, 1994 by the Archaeological Survey of Ireland. The definition includes Zones of Archaeological Potential in towns and all other monuments of archaeological interest which have so far been identified. Any works at or in relation to a recorded monument requires two months' notice to the former Department of the Environment, Heritage and Local Government (now Department of Arts, Heritage and the Gaeltacht) under section 12 of the National Monuments (Amendment) Act, 1994.

Scoping

Scoping is the process of determining what issues are to be addressed, and setting out a methodology in which to address them in a structured manner appropriate to the plan or programme. Scoping is carried out in consultation with appropriate environmental authorities.

Strategic Actions

Strategic actions include: Policies/Strategies, which may be considered as inspiration and guidance for action and which set the framework for Plans and programmes; Plans, sets of co-ordinated and timed objectives for the implementation of the policy; and Programmes, sets of projects in a particular area.

Strategic Environmental Assessment (SEA)

Strategic Environmental Assessment (SEA) is the formal, systematic evaluation of the likely significant environmental effects of implementing a plan or programme before a decision is made to adopt it.

Strategic Environmental Objective (SEO)

Strategic Environmental Objectives (SEOs) are methodological measures developed from policies which generally govern environmental protection objectives established at international, Community or Member State level and are used as standards against which the provisions of the Plan and the alternatives can be evaluated in order to help identify which provisions would be likely to result in significant environmental effects and where such effects would be likely to occur, if - in the case of adverse effects - unmitigated.

Section 1 SEA Introduction and Background

1.1 Introduction and Terms of Reference

This is the Strategic Environmental Assessment (SEA) Environmental Report for Proposed Amendment No. 2 of the Callan Local Area Plan 2009-2020.

The purpose of this report is to provide a clear understanding of the likely environmental consequences of decisions regarding the adoption and implementation of the Plan. The SEA is carried out in order to comply with the provisions of the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (SI No. 436 of 2004) as amended. This report should be read in conjunction with the Proposed Amendment Local Area Plan.

1.2 SEA Definition

Environmental assessment is a procedure that ensures that the environmental implications of decisions are taken into account before such decisions are made. Environmental Impact Assessment, or EIA, is generally used for describing the process of environmental assessment for individual projects, while Strategic Environmental Assessment, or SEA, is the term which has been given to the environmental assessment of plans and programmes, which help determine the nature and location of individual projects taking place. SEA is a systematic process of predicting and evaluating the likely significant environmental effects of implementing a proposed plan or programme in order to ensure that these effects are adequately addressed at the earliest appropriate stages of decision-making in tandem with economic, social and other considerations.

1.3 SEA Directive and its transposition into Irish Law

Directive 2001/42/EC of the European Parliament and of the Council of Ministers, of 27th June 2001, on the Assessment of the Effects of Certain Plans and Programmes on the Environment, referred to hereafter as the SEA Directive, introduced the requirement that SEA be carried out on plans and programmes which are prepared for a number of sectors, including land use planning.

The SEA Directive was transposed into Irish Law through the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (Statutory Instrument Number (SI No. 435 of 2004) and the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (SI No. 436 of 2004). Both sets of Regulations became operational on 21st July 2004. The Regulations have been amended by the European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011 (SI No. 200 of 2011) and the Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011 (SI No. 201 of 2011).

1.4 Implications for the LAP Amendment and the Planning Authority

The Habitats Directive requires, inter alia, that plans and programmes undergo an Appropriate Assessment (AA) process to establish the likely or potential effects arising from implementation of the Plan. Arising from this assessment, it is necessary to undertake Stage 2 AA of the Plan as it is likely to have a significant environmental effect or a potentially significant environmental effect on the Natura 2000 Network of designated ecological sites.

The SEA Directive requires that Strategic Environmental Assessment is carried out for plans and programmes which are being subjected to Stage 2 AA.

The findings of the SEA are expressed in this Environmental Report. This report will be altered to take account of both: recommendations contained in submissions; and changes which may be made to the Draft Plan on foot of submissions. Elected Members of Kilkenny County Council will take into account the findings of this report and other related SEA output during their consideration of the Draft Plan and before its adoption.

An SEA Statement will be prepared and will accompany the adopted Plan and shall summarise, inter alia, how environmental considerations have been integrated into the Plan.

Section 2 The Proposed Amendment

2.1 Amendment Text and Map

Proposed Amendment No 2 of the Callan Local Area Plan (LAP) 2009-2020 consists of a written statement and an accompanying map.

The Proposed Amendment involves the extension of the LAP boundary to include an 8 acre site at Westcourt, Callan as per Map 1. The land will be zoned 'Agriculture'. The 'Agriculture' zoning objective to be included in the Plan is as follows:

Objective: To conserve and protect agricultural land from interference from non-agricultural uses. To prevent development of agricultural land adjacent to development areas which would prejudice the future expansion of the town, except in exceptional circumstances where there are site specific development objectives for the provision of certain types of development.

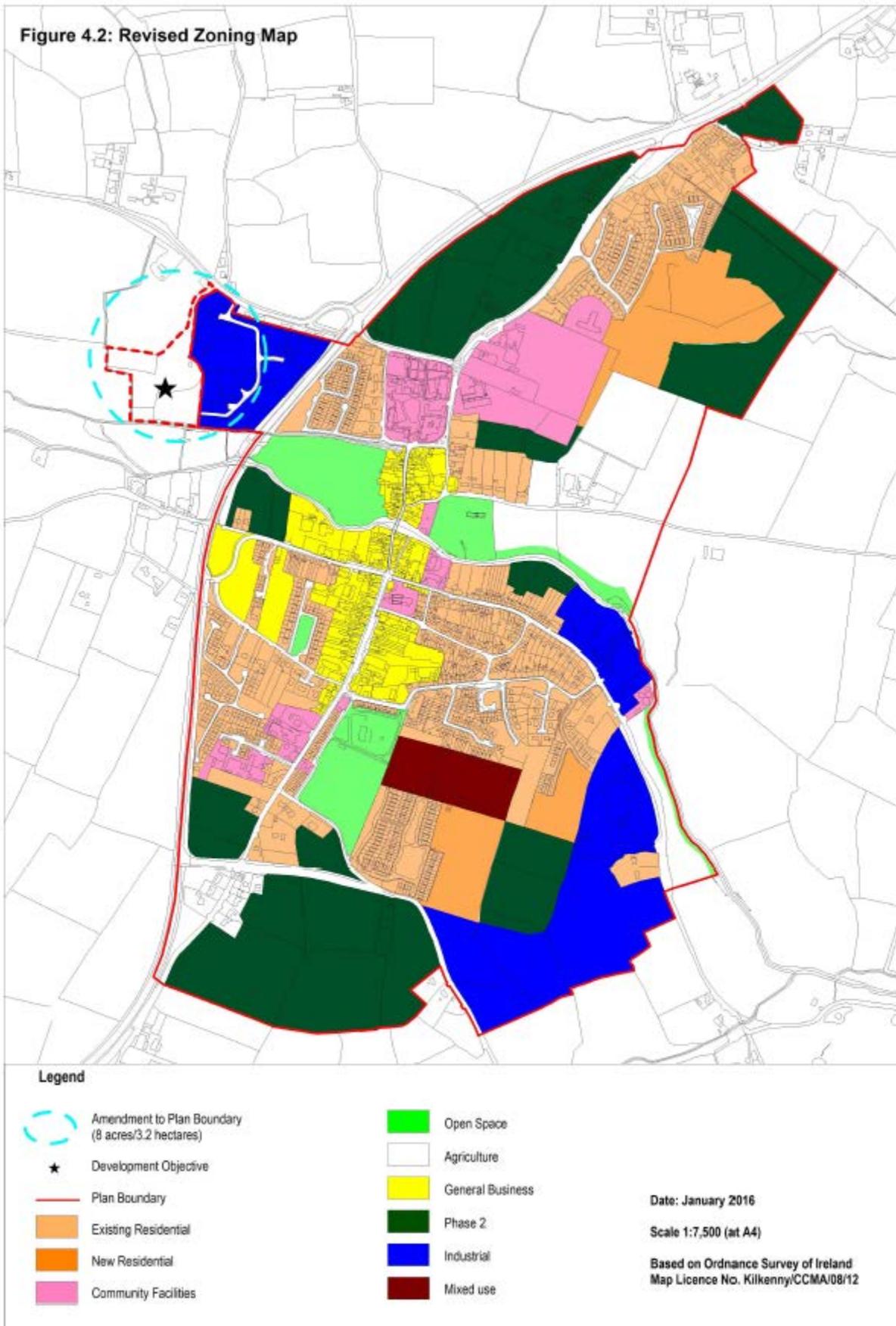
Permissible uses: Agriculture, horticulture, public service installations, uses identified in site specific development objectives.

Open for Consideration: Public open space, guesthouse, restaurant, nursing home, dwelling houses in certain limited cases, halting site, private open space, other uses not contrary to the proper planning and sustainable development of the area.

It is proposed to include a site specific objective for this land as follows:

To facilitate the development of a residential complex (10 units approx.) initiated by the Camphill Community with ancillary small scale socio-economic uses related to the activities of the residents of the development, and to provide for a pedestrian link from the lands to the town centre, subject to the following:

- *The development must not interfere with the ecological integrity of the adjacent Kings River which forms part of the River Barrow and River Nore SAC, a Natura 2000 site. Any future development (including pedestrian link) of the lands will be subject to Appropriate Assessment in accordance with Article 6 of the Habitats Directive.*
- *A site-specific Flood Risk Assessment appropriate to the type and scale of the proposed development and a site specific justification test if required must be submitted at planning application stage in line with the DoEHLG Guidelines "The Planning System and Flood Risk Management", November 2009. Residential use is excluded from Flood Zone B.*
- *Any developments proposed for the lands at Westcourt must be connected to the foul sewer network for treatment of waste water. Such developments will only proceed subject to the local treatment plant having capacity to adequately treat the additional load. It must be shown by proposals that all storm water can be appropriately collected, stored and treated so as not to affect the quality of water bodies.*
- *The archaeological importance of the site must be safeguarded by protecting archaeological sites and monuments (including their setting), and archaeological objects, including those that are listed in the Record of Monuments and Places, and in the Urban Archaeological Survey of County Kilkenny or newly discovered sub-surface archaeological remains. Any proposed development in the vicinity or confines of archaeological monuments will require an archaeological assessment and the preparation of an archaeological impact statement for submission as part of any planning application for development within this area.*
- *When innovative layouts and exceptional design for living are achieved, strict adherence to the development management standards for new residential developments as set out in Chapter 12 of the County Development Plan 2014-2020 will not be required, provided the proposed designs can be demonstrated to satisfy the social and physical needs of the occupants.*



2.2 Statutory Context

The Amendment has been prepared in accordance with Sections 20(3) of the Planning and Development Act 2000-2015.

LAPs are required to be consistent with the policies and objectives of the County Development Plan and its Core Strategy, as well as the Regional Planning Guidelines that apply to the area of the Plan.

The Amendment and the LAP should be read in conjunction with the Kilkenny County Development Plan 2014-2020, which sets out the overarching development strategy for the County.

2.3 Relationship with other relevant Plans and Programmes

2.3.1 Introduction

The Plan sits within a hierarchy of land use forward planning strategic actions. The Plan must comply with relevant higher level strategic actions and may, in turn, guide lower level strategic actions. The following sections identify a number of these strategic actions, further details of which are contained in the main Plan document.

The Plan is at the lower level of the hierarchy in the context of national, regional and county level plans. The preparation of the Local Area Plan has also been informed and influenced by various local government, national and international policy documents including (but not limited to) the following:

International

- Agenda 2000
- Local Agenda 21
- The European Spatial Development Perspective (ESDP)
- Various EU Directives

National

- Infrastructure and Capital Investment 2012-16: Medium Term Exchequer Framework, 2011
- Sustainable Development: A Strategy for Ireland, 1997
- National Spatial Strategy 2002 – 2020 (NSS)
- Ministerial Guidelines issued under Section 28 of the Planning and Development Act 2000-2011

Regional

- Regional Planning Guidelines for the South East Region 2010-2022

County

- Kilkenny County Development Plan 2014-2020
- Callan Local Area Plan 2009-2020. A SEA Environmental Report was prepared for the Callan Local Area Plan prior to its adoption in 2009. The life of the LAP was extended by a further 4 years (up to 2020) in 2014.

2.3.2 The National Spatial Strategy

The National Spatial Strategy 2002-2020 (NSS) is a planning framework for Ireland that aims to achieve a better balance of social, economic and physical development across Ireland, supported by effective planning. In order to drive development in the regions, the NSS proposes that areas of sufficient scale and critical mass will be built up through a network of gateways, hubs and key towns. The NSS is about people, places and potential, and the importance of making the most of our cities,

towns and rural places to bring a better spread of opportunities, better quality of life and better places to live in.

It is anticipated that the NSS will be replaced by a National Framework Plan, in accordance with the Planning Policy Statement published by the Department of Environment in 2015.

2.3.3 Regional Planning Guidelines for the South East Region 2010-2022

The RPGs for the South East Region 2010-2022 provide the strategic regional mechanism for the implementation of the NSS. The Guidelines provide a planning framework for the future physical, economic and social development of the Region which includes County Kilkenny. A key aspect of the RPGs is integrating sustainable economic development with the protection and enhancement of the environment. The RPGs set out the vision for the Region through the formulation of strategic goals, policies and objectives which establish a framework for other lower level plans and programmes including development plans and local area plans.

It is anticipated that the RPG's will be replaced with a Regional Spatial and Economic Strategy prepared by the Southern Assembly.

2.3.4 Kilkenny County Development Plan 2014-2020

The Kilkenny County Development Plan 2014-2020 sets out the strategic planning and sustainable development of County Kilkenny over its lifetime and is consistent with the National Spatial Strategy and the Regional Planning Guidelines.

Callan is identified as a key settlement in the County; a District Town. The population of Callan Town at the last census in 2011 was 2330 persons, which was an increase from 2006 when the population was 1771.

2.3.5 River Basin Management Plans

Local Authorities, including Kilkenny County Council, have prepared the Nore River Basin Management Plan which is implemented in order to help protect and improve waters in the town and wider River Basin District. The Plan and associated Programme of Measures includes provisions to help ensure that water bodies in the districts meet the objectives of the Water Framework Directive.

2.3.6 Catchment Flood Risk Assessment and Management Studies

Catchment Flood Risk Assessment and Management (CFRAM) Studies are being undertaken for the River Nore by the Office of Public Works.

The study is focusing on areas known to have experienced flooding in the past and areas that may be subject to flooding in the future either due to development pressures or climate change.

The final output from the study will be a CFRAM Plan. The Plan will define the current and future flood risk in the River Basin District and set out how this risk can be managed.

In November 2015, draft flood hazard and flood risk maps have been published by the OPW and are on public consultation at the time of writing.

2.3.7 Smarter Travel 2009

"Smarter Travel, A Sustainable Transport Future, A New Transport Policy for Ireland 2009 - 2020" is the Government's action plan to free towns and cities from traffic congestion, substantially cut CO₂

emissions, encourage car based commuters to leave their cars at home, and encourage a shift toward walking, cycling and greater public transport usage.

2.3.8 Food Harvest 2020

Food Harvest 2020 is a roadmap for the Irish food industry, as it seeks to innovate and expand in response to increased global demand for quality foods. It sets out a vision for the potential growth in agricultural output after the removal of milk quotas in 2015.

2.3.9 Environmental Protection Objectives

The Plan is subject to a number of high level environmental protection policies and objectives with which it must comply.

Examples of Environmental Protection Objectives include the aim of the EU Habitats Directive - which is to contribute towards ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora in the European territory of Member States - and the purpose of the Water Framework Directive - which is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater which, among other things, prevents deterioration in the status of all water bodies and protects, enhances and restores all waters with the aim of achieving good status by 2015.

Section 3 SEA Methodology

3.1 Introduction to the Iterative Approach

This section details how the SEA has been undertaken alongside the preparation of the Amendment to the Plan.

The Plan and associated SEA, Appropriate Assessment (AA) and Strategic Flood Risk Assessment (SFRA) documents were prepared in an iterative manner whereby multiple revisions of each document were prepared, each informing subsequent iterations of the others.

3.2 Appropriate Assessment and Integrated Biodiversity Impact Assessment

3.2.1 Appropriate Assessment

A Stage 2 Appropriate Assessment (AA) has been undertaken alongside the preparation of the Plan. The requirement for AA is provided under the EU Habitats Directive (Directive 1992/43/EEC).

The AA concluded that the Plan will not affect the integrity of the Natura 2000 network¹. The AA also recommended the inclusion of the following provisions into the proposed development objective:

- *Any future development (including pedestrian link) of the lands will be subject to Appropriate Assessment in accordance with Article 6 of the Habitats Directive.*
- *Any developments proposed for the lands at Westcourt will be connected to the local public sewer (for treatment of waste water). Such developments will only proceed subject to the local treatment plant having capacity to adequately treat the additional load. It must be shown by proposals that all storm water can be appropriately collected, stored and treated so as not to affect the quality of water bodies.*

The preparation of the Plan, SEA and AA has taken place concurrently and the findings of the AA have informed both the Plan and the SEA. All recommendations made by the AA were integrated into the Plan.

3.3 Strategic Flood Risk Assessment

A Strategic Flood Risk Assessment (SFRA) has been undertaken alongside the preparation of the Plan and is attached as Appendix 1 to this report. The requirement for SFRA is provided under 'The Planning System and Flood Risk Management Guidelines for Planning Authorities' (DEHLG and OPW, 2009).

The findings of the SFRA have informed both the Amendment to the Plan and the SEA. The SFRA concluded with the following recommendations which have been included in the proposed development objective:

- *Residential use shall be excluded from Flood Zone B.*

¹ Except as provided for in Section 6(4) of the Habitats Directive, viz. There must be:

- (a) no alternative solution available;
- (b) imperative reasons of overriding public interest for the plan to proceed; and
- (c) adequate compensatory measures in place.

- *The site specific Flood Risk Assessment for any development on these lands should be carried out in accordance with Appendix A of the Guidelines. The site specific FRA may result in the boundary of the flood zones being amended.*
- *Flood risk management should be addressed in the design of any development on these lands, in accordance with Appendix B of the Guidelines.*
- *The management of surface water on the site shall accord with the policies and objectives of the current Kilkenny County Development Plan 2014-2020 and the Local Area plan 2009-2020. Details of the management of surface water on the site shall be provided at planning application stage.*

The SFRA has therefore facilitated the integration of flood risk management considerations into the Plan.

3.4 Scoping

3.4.1 Introduction

In consultation with the environmental authorities, the scope of environmental issues to be dealt with by the SEA together with the level of detail to which they are addressed was broadly decided upon taking into account the collection of environmental baseline data and input from environmental authorities. Scoping allowed the SEA to become focused upon key issues relevant to the environmental components which are specified under the SEA Directive².

As the Plan is not likely to have significant effects on the environment in another Member State transboundary consultations as provided for by Article 7 of the SEA Directive were not undertaken.

3.4.2 Scoping Notices

All relevant environmental authorities³ identified under the SEA Regulations as amended, were sent SEA scoping notices by the Council in August 2015 indicating that submissions or observations in relation to the scope and level of detail of the information to be included in the environmental report could be made to the Council. Environmental authorities were informed that submissions, or parts of submissions, made on the AA or SFRA would also be taken into account.

3.4.3 Scoping Responses

Submissions were made by:

- The Department of Arts, Heritage & the Gaeltacht (DAHG), and

² These components comprise biodiversity, fauna, flora, population, human health, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors.

³ The following authorities were notified: Environmental Protection Agency; Department of Communications, Energy and Natural Resources; Department of Agriculture, Fisheries and Food; Department of the Environment, Community and Local Government; Department of Arts, Heritage and the Gaeltacht; and adjoining planning authorities whose areas are contiguous to the administrative area of Kilkenny County Council.

- The Environmental Protection Agency.

These submissions influenced the scope of the assessments.

The Department of Arts, Heritage and the Gaeltacht identified archaeological implications of the plan on the site of a Recorded Monument KK026-002 Castle.

The EPA identified a number of issues. Specific comments addressed by the assessment include:

- The Amendment should be consistent with Regional Planning Guidelines and the County Development Plan.
- The King's River, which flows through the LAP, is classified as *Moderate* quality status according to the Water Framework Directive. The Amendment should protect and where possible, improve surface water, groundwater resources and their associated habitats and species, including fisheries, in accordance with the Water Framework Directive and the South Eastern River Basin Management Plan and associated Programme of Measures.
- Groundwater vulnerability of the subject lands is categorised by the GSI as predominately *High* vulnerability.
- In the context of proposed future development and zoning, any development should be appropriate to the level of flood risk identified and should be consistent with *The Planning System and Flood Risk Management Guidelines for Planning Authorities (DEHLG/OPW 2009)*.
- The EPA's *Focus on Wastewater Treatment Report for 2013* (EPA, 2014) indicates that the Callan Wastewater Treatment Plant did not meet the standards set out in the Urban Waste Water Treatment Regulations for effluent quality. It is recommended that a commitment is included in the Amendment to collaborate with Irish Water on the provision, maintenance and enhancement of water services over the lifetime of the amended Plan to cater for any development in the LAP.
- The Amendment should consider incorporating an appropriate riverside buffer alongside designated sites (including the River Barrow and River Nore cSAC / River Nore SPA) and associated ecological linkages and assist in the management of flood risk. Where the application of buffer zones is being considered, the National Parks and Wildlife Service (NPWS) and where relevant Inland Fisheries Ireland should be consulted.

There are many policies and development management standards contained in the Kilkenny County Development Plan, the overarching policy document for the area, which address some of these concerns.

In relation to bat protection measures (raised by DAHG), it is already an objective (8C) of the current Kilkenny County Development Plan 2014-2020 'To protect and, where possible, enhance the plant and animal species and their habitats that have been identified under European legislation (Habitats and Birds Directive) and protected under national Legislation (European Communities (Birds and Natural Habitats) Regulations 2011 (SI477 of 2011), Wildlife Acts 1976-2010 and the Flora Protection Order (SI 94 of 1999)'.

Furthermore, in terms of nature conservation in areas outside of protected areas, it is an objective (8E) of the County Development Plan 'To protect and where possible enhance wildlife habitats and landscape features which act as ecological corridors/networks and stepping stone, such as river corridors, hedgerow and road verges, and to minimise the loss of habitats and features of the wider countryside (such as ponds, wetlands, trees) which are not within designated sites. Appropriate mitigation and/or compensation measures to conserve biodiversity, landscape character and green infrastructure networks will be required where habitats are at risk or lost as part of a development'.

Section 8.2.5.1 of the County Development Plan refers to hedgerows. The County Development Plan recognises that hedgerows contribute significantly to the biodiversity and landscape character of County Kilkenny. They have an important farming function, they are wildlife habitats, and wildlife corridors between habitats, and they also have historical

significance as townland and field boundaries. The Plan includes the following 6 Development Management Standards in relation to hedgerows:

- *To protect existing woodlands, trees and hedgerows which are of amenity or biodiversity value and/or contribute to landscape character of the county, and to ensure that proper provision is made for their protection and management, when undertaking, approving or authorising development.*
- *To ensure that when undertaking, approving or authorising development that sufficient information is provided to enable an assessment of impacts on woodlands, trees, and hedgerows.*
- *Have regard to, and seek the conservation of (a) sites of significance identified in the Kilkenny Woodlands Survey 1997, and (b) the trees of County Kilkenny identified in the Tree Register of Ireland, (c) Survey of Mature Trees in Kilkenny City and Environs in the assessment of planning applications, and (d) the National Survey of Native Woodlands and Ancient Woodlands*
- *Retain hedgerows, and other distinctive boundary treatment such as stone walls, when undertaking, authorising or approving development; where the loss of the existing boundary is unavoidable as part of development, to ensure that a new hedgerow is planted using native species, and species of local provenance to replace the existing hedgerow and/or that the wall is re-built using local stone and local vernacular design.*
- *Discourage the felling of mature trees to facilitate development.*
- *Require the planting of native broadleaved species, and species of local provenance, in new developments as appropriate. See Appendix G for a list of native trees and shrubs.*

3.5 Environmental Baseline Data

The SEA process is informed by the environmental baseline (i.e. the current state of the environment) to facilitate the identification and evaluation of the likely significant environmental effects of implementing the provisions of the Plan and the alternatives and the subsequent monitoring of the effects of implementing the provisions of the Plan.

3.6 Alternatives

The SEA Directive requires that reasonable alternatives (taking into account the objectives and the geographical scope of the plan or programme) are identified, described and evaluated for their likely significant effects on the environment. In accordance with this requirement, alternatives are considered in Section 1.

3.7 The SEA Environmental Report

In this Environmental Report, which will be placed on public display alongside the Proposed Amendment, the likely environmental effects of the Draft Plan and the alternatives are predicted and their significance evaluated.

The Environmental Report provides the Council, stakeholders and the public with a clear understanding of the likely environmental consequences of implementing the Draft Plan.

Mitigation measures to prevent or reduce significant adverse effects posed by the Plan are identified in Section 8 - these have been integrated into the Plan.

The Environmental Report will be updated in order to take account of recommendations contained in submissions and in order to take account of changes which are made to the original, Draft Plan that is being placed on public display.

The Environmental Report is required to contain the information specified in Schedule 2 of the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (SI No. 436 of 2004) as amended (see Table 3.1).

3.8 The SEA Statement

On the making of the Amendment by the Council, an SEA Statement will be prepared which will include information on:

- How environmental considerations have been integrated into the Plan, highlighting the main changes to the Plan which resulted from the SEA process;
- How the SEA Environmental Report and consultations have been taken into account, summarising the key issues raised in consultations and in the Environmental Report indicating what action was taken in response;
- The reasons for choosing the Plan in the light of the other alternatives, identifying the other alternatives considered, commenting on their potential effects and explaining why the Plan as adopted was selected; and
- The measures decided upon to monitor the significant environmental effects of implementing of the Plan.

3.9 Difficulties Encountered

The lack of a centralised data source that could make all environmental baseline data for the county both readily available and in a consistent format posed a challenge to the SEA process. This difficulty is one which has been encountered while undertaking SEAs at local authorities across the country and was overcome by investing time in the collection of data from various sources and through the use of Geographical Information Systems.

Table 3.1 Checklist of Information included in this Environmental Report

Information Required to be included in the Environmental Report	Corresponding Section of this Report
(A) Outline of the contents and main objectives of the plan or programme, and of its relationship with other relevant plans and programmes	Sections 2, 5 and 7
(B) Description of relevant aspects of the current state of the environment and the evolution of that environment without implementation of the plan or programme	Section 4
(C) Description of the environmental characteristics of areas likely to be significantly affected	Sections 4, 6 and 7
(D) Identification of any existing environmental problems which are relevant to the plan or programme, particularly those relating to European protected sites	Section 4
(E) List environmental protection objectives, established at international, EU or national level, which are relevant to the plan or programme and describe how those objectives and any environmental considerations have been taken into account when preparing the Plan	Sections 5, 6, 7 and 8
(F) Describe the likely significant effects on the environment	Sections 6 and 7

(G) Describe any measures envisaged to prevent, reduce and as fully as possible offset any significant adverse environmental effects of implementing the plan or programme	Section 8
(H) Give an outline of the reasons for selecting the alternatives considered, and a description of how the assessment was undertaken (including any difficulties)	Sections 3, 6 and 7
(I) A description of proposed monitoring measures	Section 9
(J) A non-technical summary of the above information	Non-Technical Summary (Appendix I)
(K) Interrelationships between each environmental topic	Addressed as it arises within each Section

Section 4 Environmental Baseline

4.1 Introduction

The SEA Directive requires that the information on the baseline environment is focused upon the relevant aspects of the environmental characteristics of areas likely to be significantly affected and the likely evolution of the current environment in the absence of the Plan. Being consistent with the strategic provisions of the Plan, this section provides a strategic description of aspects of environmental components which have the greatest potential to be affected by implementation of the Plan, if unmitigated.

Article 5 of the SEA Directive states that the report shall include the information that may *reasonably* be required taking into account:

- Current knowledge and methods of assessment;
- The contents and level of detail in the plan or programme and its stage in the decision-making process; and
- The extent to which certain matters are more appropriately assessed at different levels in that process in order to avoid duplication of the assessment.

What this means in practice is, *inter alia*, that SEA involves collating currently available, relevant environmental data; it does not require major new research. Where data deficiencies or gaps exist, this should be acknowledged in the report.

With respect to the likely evolution of the environment in the absence of the Plan:

1. The 2009-2020 Callan Local Area Plan contains provisions which contribute towards environmental protection and sustainable development within Callan town.
2. Higher level environmental protection objectives are also included in the County Development Plan 2014-2020 and various EU Directives and transposing Irish Regulations.

Cumulative effects occur as a result of the addition of many small impacts to create one larger, more significant, impact.

Such adverse effects could include:

- Loss of biodiversity with regard to Natura 2000 Sites and Annexed habitats and species;
- Loss of biodiversity with regard to ecological connectivity and stepping stones;
- Loss of biodiversity with regard to designated sites including Wildlife Sites and species listed on Schedule 5 of the Wildlife Act 1976;
- Spatially concentrated deterioration in human health;
- Adverse impacts on the hydrogeological and ecological function of the soil resource;
- Adverse impacts upon the status of water bodies arising from changes in quality, flow and/or morphology;
- Increase in the risk of flooding;
- Failure to provide adequate and appropriate waste water treatment;
- Failure to comply with drinking water regulations and serve new development with adequate drinking water that is both wholesome and clean;
- Increases in waste levels;
- Failure to contribute towards sustainable transport and associated impacts;
- Effects on entries to the Record of Monuments and Places and other archaeological heritage;
- Effects on entries to the Records of Protected Structures and other architectural heritage; and
- Occurrence of adverse visual impacts.

4.2 Biodiversity and Flora and Fauna

4.2.1 Natura 2000

Candidate Special Areas of Conservation (cSACs) have been selected for protection under the European Council Directive on the conservation of natural habitats and of wild fauna and flora (92/43/EEC) by the (former) Department of the Environment, Heritage and Local Government due to their conservation value for habitats and species of importance in the European Union.

Special Protection Areas (SPAs) have been selected for protection under the 1979 European Council Directive on the Conservation of Wild Birds (79/409/EEC) due to their conservation value for birds of importance in the European Union.

SPAs, along with SACs, comprise Ireland's Natura 2000 network – part of an EU-wide network of protected areas established under the Habitats Directive.

The River Barrow and River Nore candidate Special Area of Conservation (cSAC) (code 002162) is located immediately beside the plan area (King's River). The River Nore SPA (code 004233) is approx. 2.1km to the east of the amendment site. These Natura 2000 sites in the vicinity of the Plan area are shown on Figure 4.1. These are also listed on Table 4.1.

Table 4.1 Natura 2000 sites within 15km of the Plan area

Site Code	Site Name	Qualifying Feature	Threats to Site Integrity
002162	River Barrow and River Nore cSAC	<p>Annex I Habitats</p> <p>[1130] Estuaries [1140] Tidal Mudflats and Sandflats [1310] Salicornia mud [1320] Spartina Swards [1330] Atlantic Salt Meadows [1410] Mediterranean Salt Meadows [3260] Floating River Vegetation [4030] Dry heath [6430] Hydrophilous Tall Herb [7220] Petrifying springs* [91A0] Old Oak Woodlands [91E0] Residual Alluvial Forests*</p> <p>Annex II Species</p> <p>[1016] Desmoulin's whirl snail (<i>Vertigo moulinsiana</i>) [1029] Freshwater pearl mussel (<i>Margaritifera margaritifera</i>) [1092] White-clawed crayfish (<i>Austropotamobius pallipes</i>) [1095] Sea lamprey (<i>Petromyzon marinus</i>) [1096] Brook lamprey (<i>Lampetra planeri</i>) [1099] River lamprey (<i>Lampetra fluviatilis</i>) [1102] Allis shad (<i>Alosa alosa</i>) [1103] Twaite shad (<i>Alosa fallax fallax</i>) [1106] Salmon (<i>Salmo salar</i>) [1355] Otter (<i>Lutra lutra</i>) [1421] Killarney fern (<i>Trichomanes speciosum</i>) [1990] Pearl mussel (<i>Margaritifera durrovensis</i>)</p>	<p>The principle threats to the River Barrow and River Nore cSAC are pollution caused by increased fertiliser application, sewage and industrial waste. Species such as Freshwater Pearl Mussel are highly susceptible to siltation of water course and proposed developments in the vicinity of the cSAC may give rise to siltation and run-off of pollutants.</p> <p>The river has also been designated for its population of otter, a species vulnerable to the felling of mixed wood and scrub. Otters may become displaced due to disturbance during the development of unmitigated residential areas in proximity to the cSAC.</p>
002137	Lower River Suir cSAC	<p>Annex I Habitats</p> <p>[1330] Atlantic Salt Meadows</p>	Water quality of this site is vulnerable to enrichment from

Site Code	Site Name	Qualifying Feature	Threats to Site Integrity
		[1410] Mediterranean Salt Meadows [3260] Floating River Vegetation [6430] Hydrophilous Tall Herb [91A0] Old Oak Woodlands [91E0] Residual Alluvial Forests* [91J0] Yew Woodlands* Annex II Species [1029] Freshwater pearl mussel (<i>Margaritifera margaritifera</i>) [1092] White-clawed crayfish (<i>Austropotamobius pallipes</i>) [1095] Sea lamprey (<i>Petromyzon marinus</i>) [1096] Brook lamprey (<i>Lampetra planeri</i>) [1099] River lamprey (<i>Lampetra fluviatilis</i>) [1102] Allis shad (<i>Alosa alosa</i>) [1103] Twaiter shad (<i>Alosa fallax fallax</i>) [1106] Salmon (<i>Salmo salar</i>) [1355] Otter (<i>Lutra lutra</i>)	surrounding agricultural activities and commercial and private developments near the river edge. Infilling and drainage threatens the continued presence of the rare plant species <i>Hordeum secalinum</i> and <i>Groenlandia densa</i> . Drainage in the catchment results in flash floods which can have a negative impact on the many Annex II species present. Any further planting or spread of exotic species would be damaging to the existing woodland habitats.
004233	River Nore SPA	[A229] Kingfisher (<i>Alcedo atthis</i>)	There are no reported threats to this SPA. Kingfisher would be vulnerable to disturbance during the breeding season. They nest within burrows on river banks.

A Stage 2 Appropriate Assessment was undertaken on the Plan as a result of potential impacts arising.

4.2.2 Proposed Natural Heritage Area

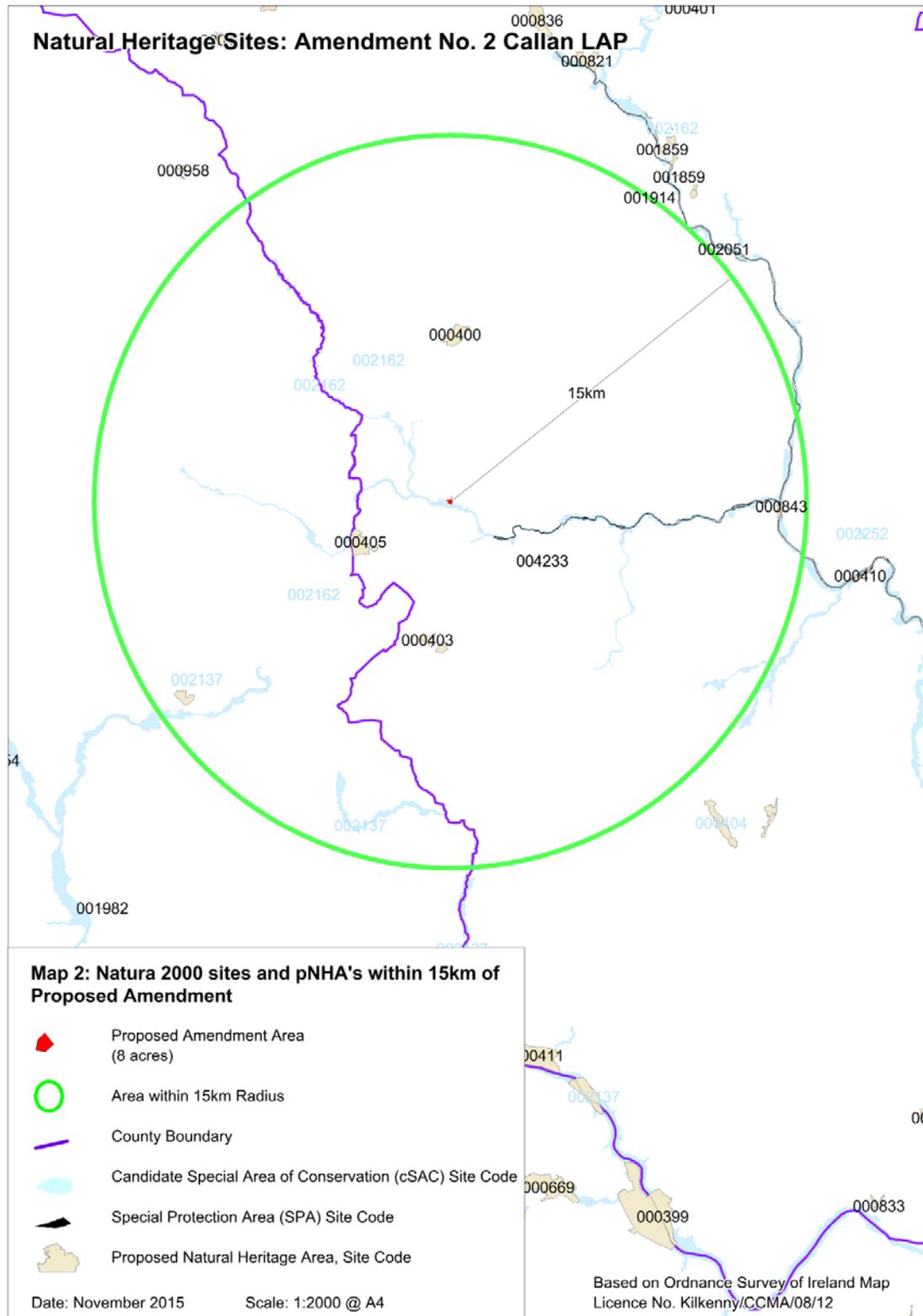
Natural Heritage Areas (NHAs) are designated due to their national conservation value for ecological and/or geological/geomorphological heritage. They cover nationally important semi-natural and natural habitats, landforms or geomorphological features, wildlife plant and animal species or a diversity of these natural attributes. NHAs are designated under the Wildlife (Amendment) Act 2000. Proposed NHAs (pNHA) were published on a non-statutory basis in 1995, but have not since been statutorily proposed or designated.

There are no NHA's or pNHA's occurring inside the Plan boundary. The nearest NHA's are Kyleadohir Wood Nature Reserve (code 000405), located approx. 3.6km to the south west, and Ballykeeffe Woodland (code 000400), located approx. X km to the north east: both are listed in Table 4.2 and mapped on Figure 4.1.

Table 4.2 NHAs and pNHAs in the vicinity of the Plan area

Natural Heritage Areas		
Designation	Code	Site Name
NHA	405	Kyleadohir Wood Nature Reserve
pNHA	400	Ballykeeffe Woodland

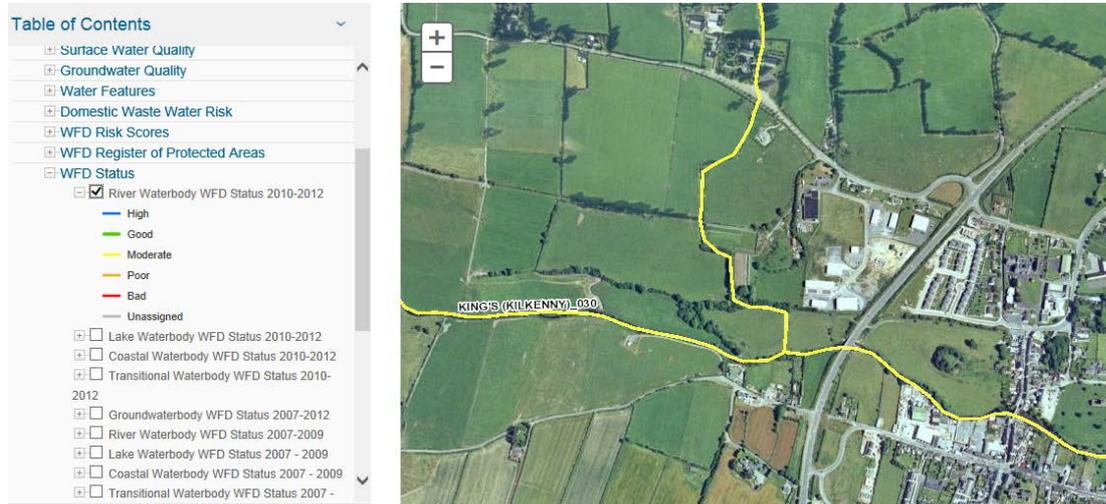
Figure 4.1 cSACs, SPAs and pNHA's in the vicinity of the Amendment area



4.2.3 Water Framework Directive Registers of Protected Areas

According to the EPA WFD Status record, groundwater underlying the Plan area is identified as being of 'good' status and the quality of the King's River⁴ 2010-2012 is 'moderate'. This is illustrated in Figure 4.2 below.

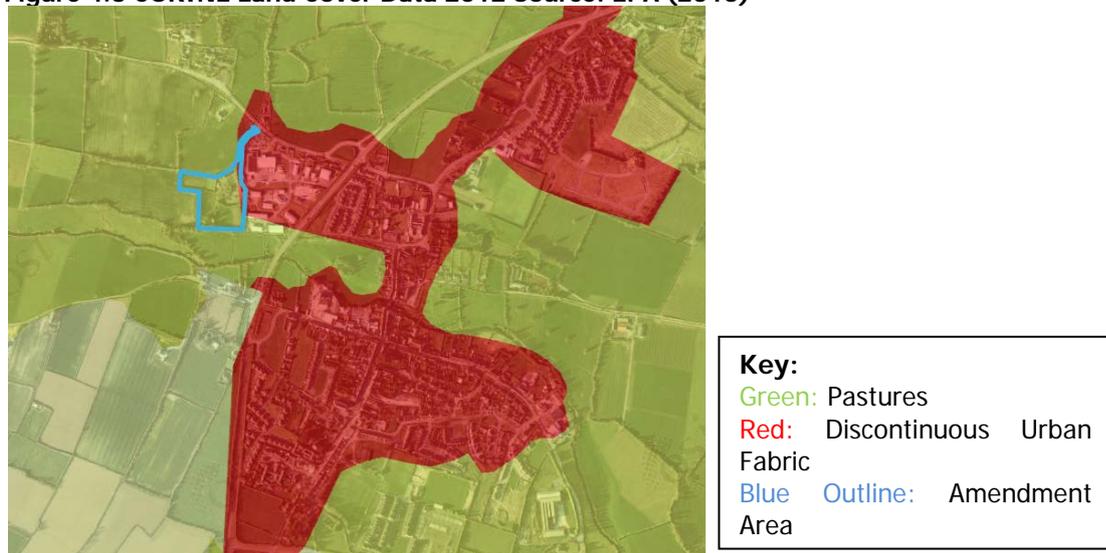
Figure 4.2 River Waterbody Status 2010-2012, Source EPA



4.2.4 CORINE Land Cover Mapping

CORINE land cover mapping⁵ for Callan town for the year 2012 is shown on Figure 4.3. The type of cover for the area of the proposed Amendment is 'Pastures'. The main type of cover in Callan Town is 'Discontinuous Urban Fabric' - indicative of the built area of the town.

Figure 4.3 CORINE Land Cover Data 2012 Source: EPA (2015)



⁵ CORINE Land Cover (CLC) is a map of the European environmental landscape based on interpretation of satellite images. Land cover is the observed physical cover, as seen from the ground or through remote sensing, including for example natural or planted vegetation, water and human constructions which cover the earth's surface. Because of the scale of the CORINE data and the method by which it was collected there are likely to be a number of inaccuracies at the local level. It is noted, however, that the land cover shown on the maps is generally accurate.

4.2.5 Ecological Networks and Connectivity

Ecological networks are important in connecting areas of local biodiversity with each other and with nearby designated sites so as to prevent islands of habitat from being isolated entities. They are composed of linear features, such as treelines, hedgerows and rivers/streams, which provide corridors or stepping stones for wildlife species moving within their normal range. They are important for the migration, dispersal and genetic exchange of species of flora and fauna particularly for mammals, especially for bats and small birds and facilitate linkages both between and within designated ecological sites, the non-designated surrounding countryside and the town.

Important ecological networks comprise a variety of features including the King's River that flows through the town, various agricultural lands, stands of trees and hedgerows.

The current County Development Plan 2014-2020 contains objectives and Development Management Standards in relation to protection of ecological networks (See Section 8.3 of this report).

4.2.6 Other Protected Species/Habitats

In addition to certain species and habitats already mentioned above, other species are protected under law wherever they occur, such as:

- 'Protected Species and natural habitats' as defined in the Environmental Liability Directive (2004/35/EC) and European Communities (Environmental Liability) Regulations 2008 including annexed habitats and species listed under Annexes I, II and IV of the EU Habitats Directive and Annex I of the EU Birds Directive;
- Species/Habitats legally protected under the Flora Protection Order in the Wildlife (Amendment) Act 2000;
- Other species of flora and fauna and their key habitats which are protected under the Wildlife Acts 1976-2000 including all native mammals; and
- Stepping stones and ecological corridors including nature conservation sites (other than Natura 2000 sites), habitats and species locations covered by Article 10 of the Habitats Directive.

4.2.7 Existing Problems

Previous developments in the town such as residential, commercial and transportation have resulted in loss of biodiversity and flora and fauna however legislative objectives governing biodiversity and fauna were not identified as being currently conflicted with.

4.3 Population and Human Health

4.3.1 Population

The population of Callan town (both Urban and Rural CSO areas) was recorded as being 2,330 in 2011. This was up from 1,771 in 2006.

4.3.2 Human Health

Human health has the potential to be impacted upon by environmental vectors (i.e. environmental components such as air, water or soil through which contaminants or pollutants, which have the potential to cause harm, can be transported so that they come into contact with human beings). Hazards or nuisances to human health can arise as a result of exposure to these vectors arising from incompatible adjacent land uses for example. These factors have been considered with regard to the description of: the baseline of each environmental component; and the identification and evaluation of the likely significant environmental effects of implementing the Plan.

4.3.3 Existing Problems

The Strategic Flood Risk Assessment (SFRA) undertaken alongside the preparation of the Plan has identified lands that are at elevated levels of flood risk within the Plan area. The SFRA has facilitated the integration of flood risk management considerations into the Plan. Other issues relating to drinking water and waste water treatment are discussed in detail in Section 4.7.

4.4 Soil

Soil is the top layer of the earth's crust. It is formed by mineral particles, organic matter, water, air and living organisms. Soil can be considered as a non-renewable natural resource because it develops over very long timescales. It is an extremely complex, variable and living medium and performs many vital functions including: food and other biomass production, storage, filtration and transformation of many substances including water, carbon, and nitrogen. Soil has a role as a habitat and gene pool, serves as a platform for human activities, landscape and heritage and acts as a provider of raw materials. Such functions of soil are worthy of protection because of their socio-economic as well as environmental importance. Soils in any area are the result of the interaction of various factors, such as parent material, climate, vegetation and human action.

To date, there is no Directive which is specific to the protection of soil resources. However, there is currently an EU Thematic Strategy on the protection of soil which includes a proposal for a Soil Framework Directive which proposes common principles for protecting soils across the EU.

Soil types, as classified by Teagasc in co-operation with the Forest Service, EPA and GSI, are mapped on Figure 4.2. The underlying soil type of the amendment area is classified as 'Acid brown earths – Brown Podzolics'.

4.4.1 County Geological Sites

The Geological Survey of Ireland in partnership with Kilkenny County Council and Kilkenny Heritage Forum carried out an audit of the County Geological Sites in Kilkenny in 2007. The resulting report was an action of the County Kilkenny Heritage Plan.

There are no County Geological Sites within the Amendment Area. The nearest County geological Sites are mapped on Figure 4.7.

The underlying rock type in Callan town is generally 'Carboniferous', and the plan amendment area is identifiable as 'dark shaly micrite, peloidal limestone'.

4.4.2 Existing Problems

Legislative objectives governing soil were not identified as being conflicted with.

Table 4.3 County Geological Sites near to Plan area

Site Code in CDP	Geological Site name	County	Site Description	Geological Features	Designation
4	Ballykeefe Quarry	Kilkenny	Disused Quarries exposing slate	A well exposed section of fossiliferous Lower Carboniferous limestone within the Lower Carboniferous Ballyadams Formation.	County Geological Site
19	Rathduff (Bayley) King's River	Kilkenny	Exposed limestone road cutting (M9)		County Geological Site
17	Windgap Artesian Borehole	Kilkenny	Artesian Well	Such wells get their water supply from confined aquifers, containing groundwater that flows upwards, against gravity, without need for a pump.	County Geological Site

Figure 4.2 Soil Type

Source: Teagasc, GSI, Forest Service & EPA (2006) *Soils and Subsoils Class*



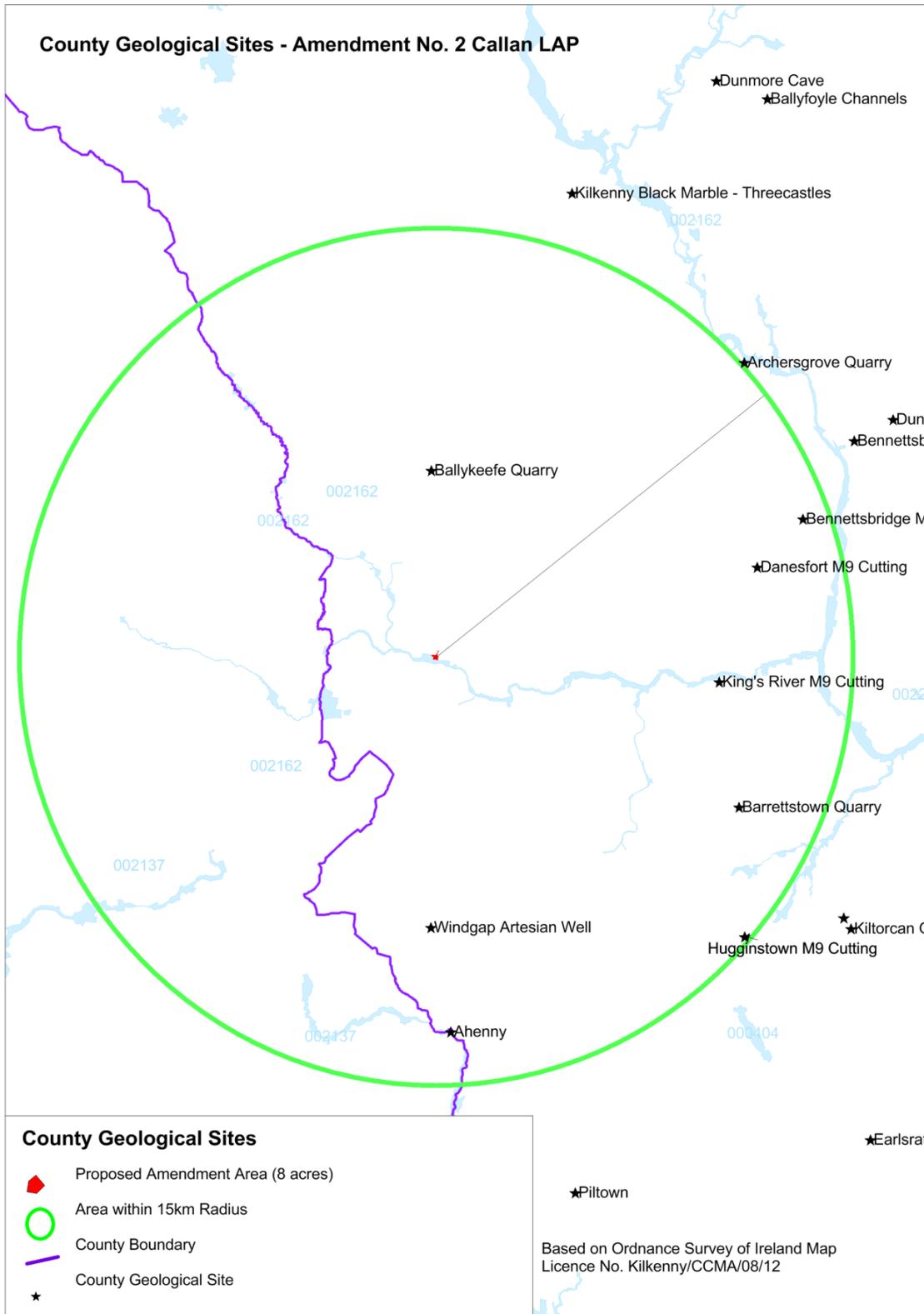


Figure 4.3 County Geological Sites in Plan area, Source: Kilkenny County Council

4.5 Water

4.5.1 Potential Pressures on Water Quality

Human activities, if not properly managed, can cause deterioration in water quality. Pressures exerted by human activities include the following:

- Sewage and other effluents discharged to waters from point sources, e.g. pipes from treatment plants;
- Discharges arising from diffuse or dispersed activities on land;
- Abstractions from waters; and
- Structural alterations to water bodies.

A point source pressure has a recognisable and specific location at which pollution may originate. Examples of significant point source pressures include direct discharges from waste water treatment plants, licensed discharges from industrial activities, landfills, contaminated lands (e.g. disused gas works) and mines.

4.5.2 The Water Framework Directive

4.5.2.1 Introduction and Requirements

Since 2000, Water Management in the EU has been directed by the Water Framework Directive 2000/60/EC (WFD). The WFD requires that all Member States implement the necessary measures to prevent deterioration of the status of all waters - surface, ground, estuarine and coastal - and protect, enhance and restore all waters with the aim of achieving "good status" by 2015. All public bodies are required to coordinate their policies and operations so as to maintain the good status of water bodies which are currently unpolluted and improve polluted water bodies to good status by 2015.

4.5.2.2 River Basin Districts and Water Bodies

For the purpose of implementing the WFD, Ireland has been divided into eight River Basin Districts (RBDs) or areas of land that are drained by a large river or number of rivers and the adjacent estuarine/coastal areas. The management of water resources is on these river basin districts.

Callan falls within the South Eastern RBD.

Within each river basin district - for the purpose of assessment, reporting and management - water has been divided into groundwater, rivers, lakes, estuarine waters and coastal waters which are in turn divided into specific, clearly defined water bodies.

4.5.2.3 River Basin Management Plans

Local Authorities, including Kilkenny County Council, have prepared the South Eastern River Basin Management Plan 2009-2015 which is implemented in order to help protect and improve the status of waters. The Management Plans provide specific policies for individual river basins in order to implement the requirements of the WFD.

4.5.3 Surface Water

4.5.3.1 WFD Surface Water Status

The WFD defines 'surface water status' as the general expression of the status of a body of surface water, determined by the poorer of its ecological status and its chemical status. Thus, to achieve 'good surface water status' both the ecological status and the chemical status of a surface water body need to be at least 'good'.

Ecological status is an expression of the structure and functioning of aquatic ecosystems associated with surface waters. Such waters are classified as of "good ecological status" when they meet Directive requirements.

Chemical Status is a pass/fail assignment with a failure defined by a face-value exceedance of an Environmental Quality Standards (EQS) for one or more Priority Action Substances (PAS) listed in Annex X of the Water Framework Directive (WFD). The EQS values for individual PAS substances are set at European level. Good surface water chemical status means that concentrations of pollutants in the water body do not exceed the environmental limit values specified in the Directive.

Figure 4.5 illustrates the surface water quality in the area of the proposed amendment, which is 'good status'.

4.5.3.2 Quality of Rivers

River water quality is monitored by the EPA at a number of locations. The most recent data from the EPA identify the King's River as 'moderate'.

4.5.4 Ground Water

4.5.4.1 Introduction

Groundwater is stored in the void spaces in underground layers of rock, or aquifers. These aquifers are permeable, allowing both the infiltration of water from the soils above them and the yielding of water to surface and coastal waters. Groundwater is the part of the subsurface water that is in the saturated zone - the zone below the water table, the uppermost level of saturation in an aquifer at which the pressure is atmospheric, in which all pores and fissures are full of water.

4.5.4.2 WFD Groundwater Status

For groundwater bodies, the approach to classification is different from that for surface water. For each body of groundwater, both the chemical status and the quantitative must be determined. Both have to be classed as either good or poor. The WFD sets out a series of criteria that must be met for a body to be classed as good chemical and quantitative status.

The status of the groundwater underlying Callan is identified as being of 'good' status (Source: EPA).

4.5.4.3 Aquifer Productivity, Vulnerability and Protection

The Geological Survey of Ireland (GSI) databases illustrate that a National Gravel Aquifer (Draft Mao) underlies the site, and this is illustrated in Figure 4.4 below.

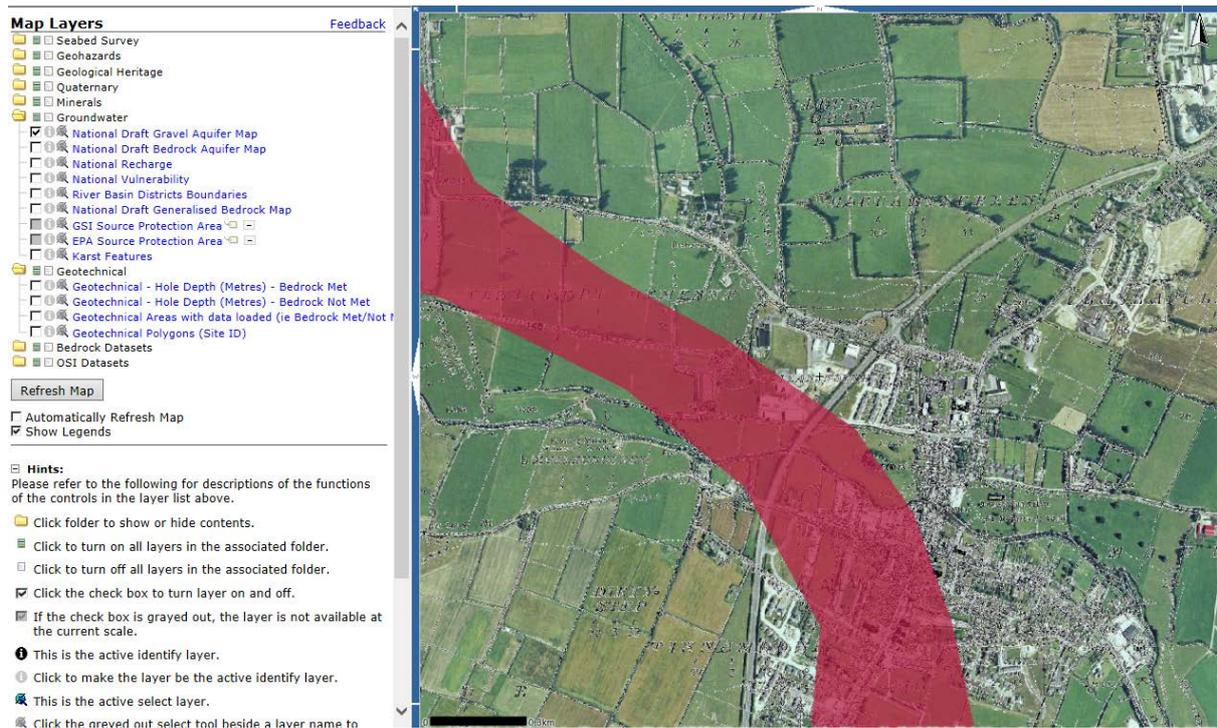


Figure 4.4 National Draft Gravel Aquifer Map, Source GSI.

4.5.5 Register of Protected Areas

The groundwater underlying both the town and surrounding area is listed on the RPA for Drinking Water (Groundwater) (Source EPA).

4.5.6 Flooding

4.5.6.1 Introduction

Flooding is an environmental phenomenon which, as well as having economic and social impacts, could in certain circumstances pose a risk to human health.

4.5.6.2 EU Floods Directive

European Directive 2007/60/EC on the assessment and management of flood risks requires Member States to carry out a preliminary assessment by 2011 in order to identify the river basins and associated coastal areas at risk of flooding. For such zones, flood risk maps currently being finalised. Flood risk management plans focused on prevention, protection and preparedness will be finalised in 2016. The Office of Public Works has prepared Preliminary Flood Risk Assessment (PFRA) maps which identify areas where the risks associated with flooding might be significant. These areas, Areas for Further Assessment (AFAs), including Callan, are where more detailed assessment is required to more accurately assess the extent and degree of flood risk. Flood hazard and flood risk maps for AFAs will be finalised in 2015 and Flood Risk Management Plans will be finalised in 2016.

4.5.6.3 DEHLG Flood Risk Management Guidelines

In 2009 the DEHLG published The Planning System and Flood Risk Management Guidelines for Planning Authorities. These are aimed at ensuring a more consistent, rigorous and systematic approach which will fully incorporate flood risk assessment and management into the planning system. Planning authorities are required to undertake flood risk identification, assessment and management processes as appropriate when preparing land use plans and in the consideration of applications for planning permission.

4.5.6.4 Strategic Flood Risk Assessment

A Strategic Flood Risk Assessment (SFRA) has been undertaken alongside the preparation of the Plan. The requirement for SFRA is provided under 'The Planning System and Flood Risk Management Guidelines for Planning Authorities' (DEHLG and OPW, 2009). The preparation of the Plan, SEA and SFRA has taken place concurrently and the findings of the SFRA have informed both the Plan and the SEA. The SFRA has facilitated the integration of flood risk management considerations into the Plan.

Further detail on lands that are at elevated levels of flood risk within the Plan area can be found within the SFRA which accompanies the Plan. The indicative Flood Zone B from that SFRA is reproduced in the Figure 4.10 overleaf.

4.5.7 Existing Problems

The SFRA has identified lands that are at elevated levels of flood risk within the Plan area and has facilitated the integration of flood risk management considerations into the Plan.

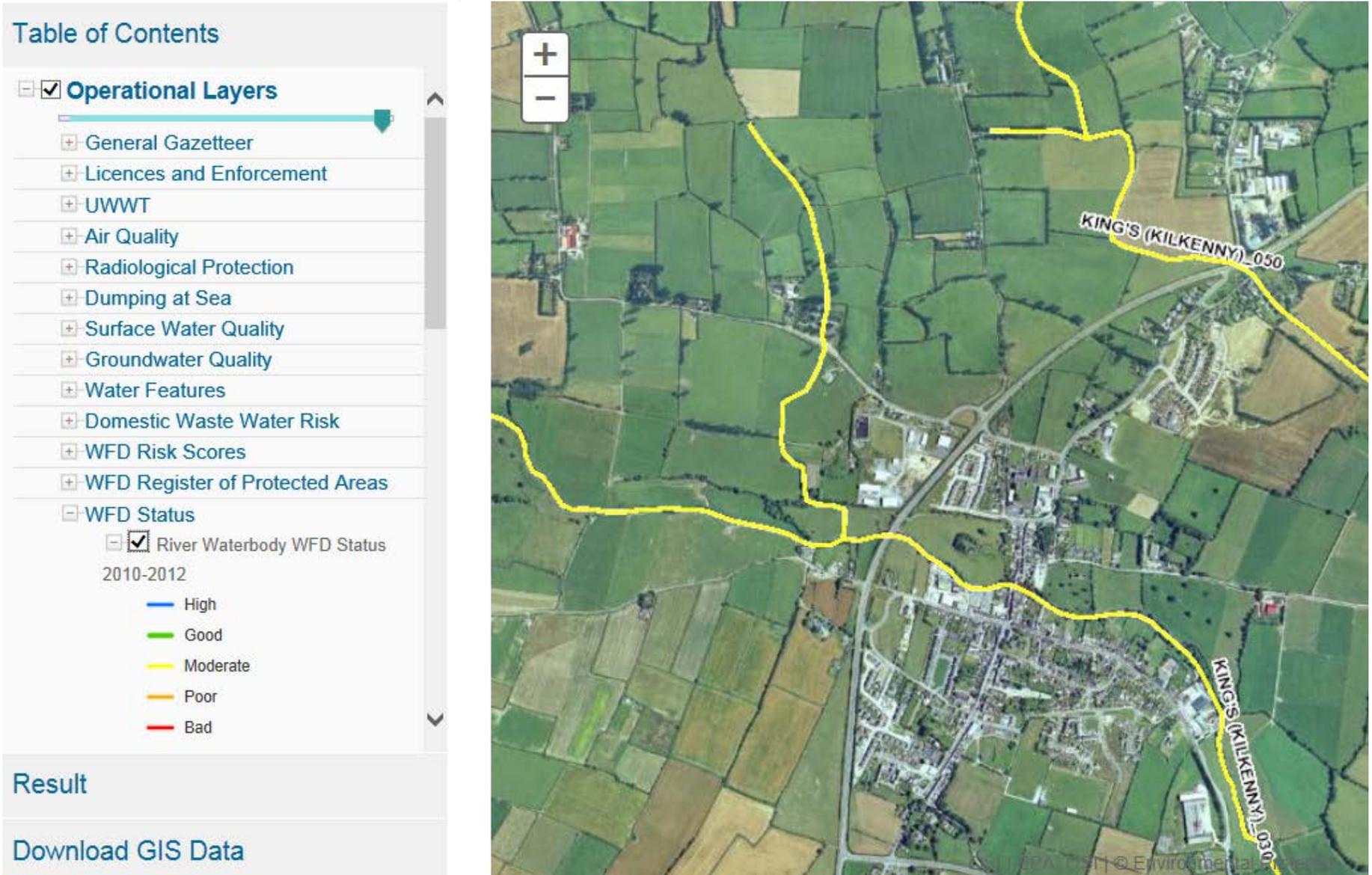


Figure 4.4 WFD Surface Water Status

Source: EPA (2011; datasets downloaded November, 2015)

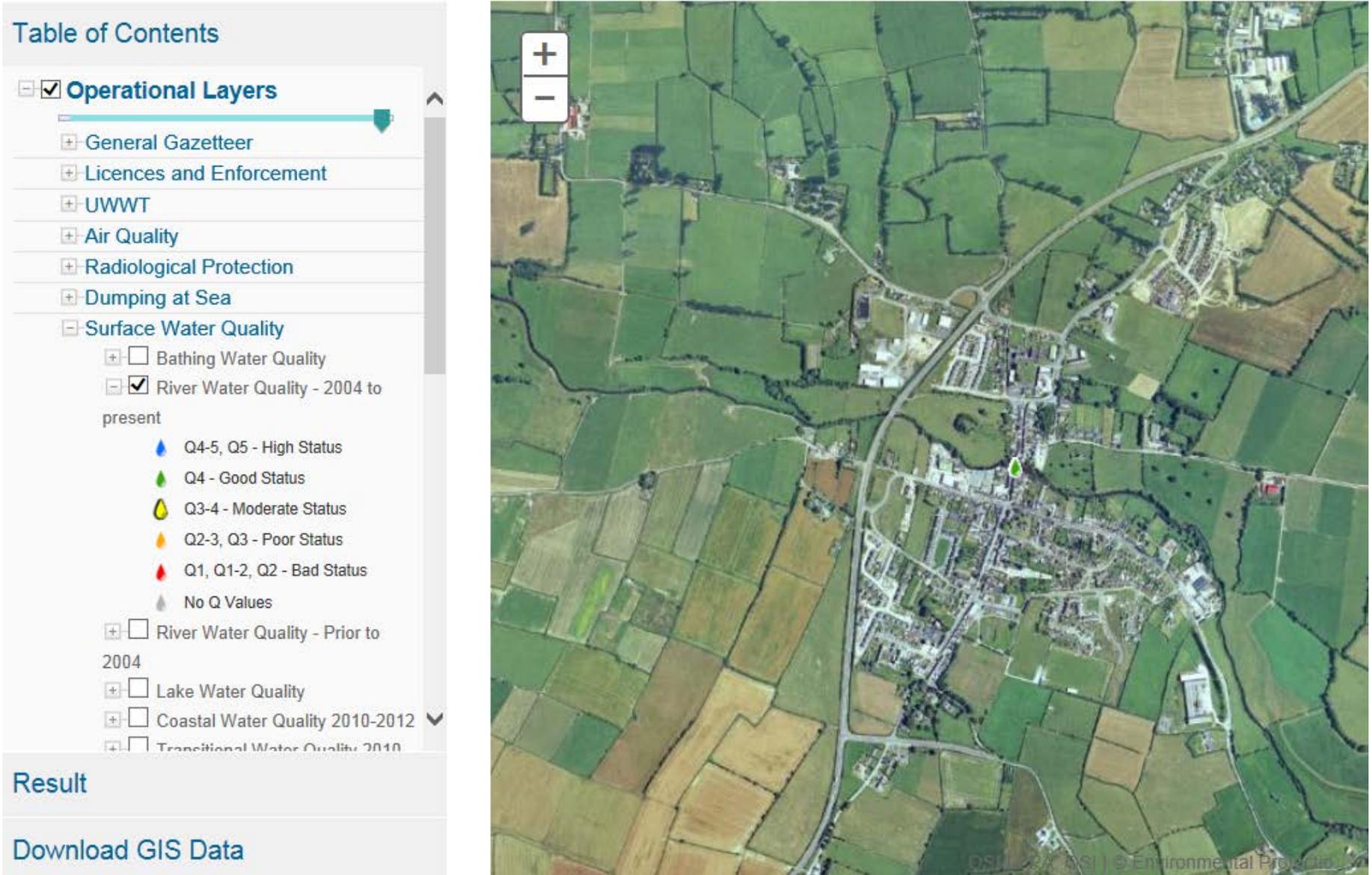
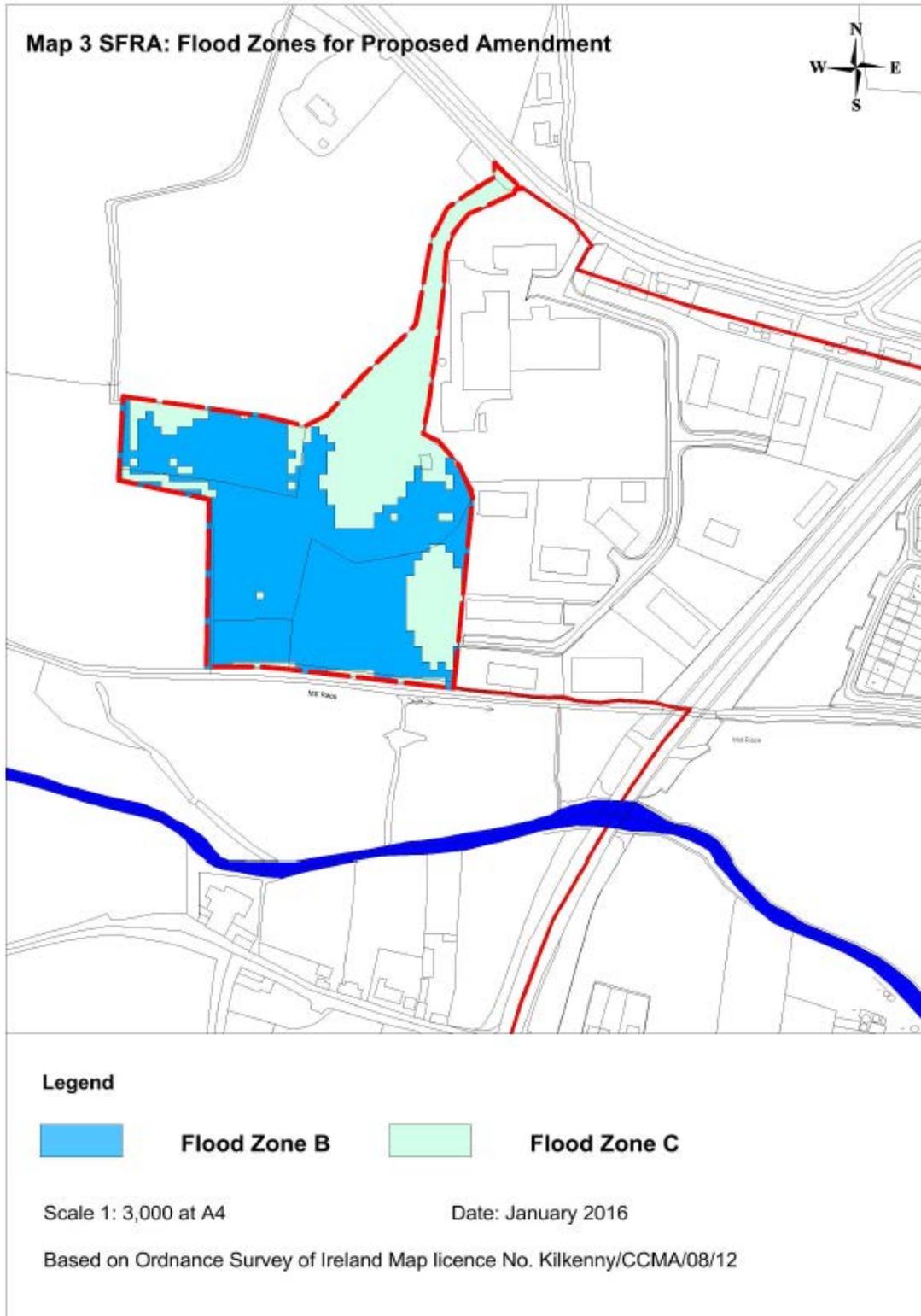


Figure 4.5 Surface Water Quality 2004-present.

Source: EPA (Various)

Figure 4.10 Proposed flood zones from SFRA.



4.6 Air and Climatic Factors

4.6.1 Ambient Air Quality

4.6.1.1 Introduction and Legislation

In order to protect human health, vegetation and ecosystems, EU Directives set down air quality standards in Ireland and the other Member States for a wide variety of pollutants. These pollutants are generated through fuel combustion, in space heating, traffic, electricity generation and industry and, in sufficient amounts, could affect the well-being of the areas inhabitants. The EU Directives include details regarding how ambient air quality should be monitored, assessed and managed.

The principles to this European approach are set out under the Air Quality Framework Directive 1996 as transposed into Irish law under the Environmental Protection Agency Act 1992 (Ambient Air Quality Assessment and Management) Regulations 1999 (SI No. 33 of 1999).

Four daughter Directives lay down limits or thresholds for specific pollutants. The first two of these directives cover: sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead; and, carbon monoxide and benzene. Two more daughter directives deal with: ozone; and polycyclic aromatic hydrocarbons, arsenic, nickel, cadmium and mercury in ambient air.

4.6.1.2 Air Zones

In order to comply with the directives mentioned above, the EPA measures the levels of a number of atmospheric pollutants. For the purposes of monitoring in Ireland, four zones are defined in the Air Quality Standards Regulations 2002 (SI No. 271 of 2002). The main areas defined in each zone are:

- Zone A: Dublin Conurbation.
- Zone B: Cork Conurbation.
- Zone C: 21 Other cities and large towns including Galway, Limerick, Waterford, Clonmel, Kilkenny, Sligo, Drogheda, Wexford, Athlone, Ennis, Bray, Naas, Carlow, Tralee and Dundalk.
- Zone D: Rural Ireland, i.e. the remainder of the State - small towns and rural areas of the country - excluding Zones A, B and C.

Callan and its surrounds in County Kilkenny is located within Zone D where air quality is currently identified as being "good". The EPA's (2015) *Air Quality in Ireland 2014* identifies that, overall, air quality in Ireland compares favourably with other EU Member States and continues to be of good quality relative to other EU countries.

4.6.2 Noise

Noise is unwanted sound. The Environmental Noise Regulations (SI No. 140 of 2006) transpose into Irish law the EU Directive 2002/49/EC relating to the assessment and management of environmental noise, which is commonly referred to as the Environmental Noise Directive or END. The END defines a common approach intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise. The END does not set any limit value, nor does it prescribe the measures to be used in the action plans, which remain at the discretion of the competent authorities. Limit values are left to each member state. At this point in time, Ireland does not have any statutory limit values.

4.6.3 Climatic Factors

The key issue involving the assessment of the effects of implementing the plan on climatic factors relates to greenhouse gas emissions arising from transport. It is noted that the Plan contains a number of actions which respond to potential threats to environmental components arising from a changing climate.

Flooding (see Section 4.5.6) - is influenced by climatic factors. There are emerging objectives relating to climate adaptation and that there is likely to be future Guidance for climate change proofing of land use plan provisions as is flagged in the National Climate Change Adaptation Framework (DECLG, 2012). Some of these objectives might relate to green infrastructure which can achieve synergies with regard to the following:

- Provision of open space amenities;
- Sustainable management of water;
- Protection and management of biodiversity;
- Protection of cultural heritage; and
- Protection of protected landscape sensitivities.

In 2009, Ireland's greenhouse gas emissions decreased across all sectors due to the effects of the economic downturn with a decline in total emissions of 7.9 per cent. In 2010, Ireland's emissions fell by a further 0.7 per cent.

Ireland's emissions profile has changed considerably since 1990, with the contribution from transport more than doubling and the share from agriculture reducing since 1998.

Travel is a source of:

1. Noise;
2. Air emissions; and
3. Energy use (39% of Total Final Energy Consumption in Ireland in 2012 was taken up by transport, the largest take up of any sector)⁶.

Land-use planning contributes to what number and what extent of journeys occur. By addressing journey time through land use planning and providing more sustainable modes and levels of mobility, noise and other emissions to air and energy use can be minimised. Furthermore, by concentrating populations, greenfield development - and its associated impacts - can be minimised and the cost of service provision can be reduced.

Between 2008 and 2011, Ireland's greenhouse gas emissions decreased across all sectors due to the effects of the economic downturn with emissions falling by 15.2% between 2008 and 2011. However, 2012 saw emissions rise by 1.2% when compared with 2011⁷.

Maximising sustainable mobility will help Ireland meet its emission target for greenhouse gases under the 2020 EU Effort Sharing target which commits Ireland to reducing emissions from those sectors that are not covered by the Emissions Trading Scheme (e.g. transport, agriculture, residential) to 20% below 2005 levels. The EPA 2013 publication *Ireland's Greenhouse Gas Emission Projections 2012-2030*, identifies that Ireland is on track to meet its commitment under the Kyoto Protocol, primarily, as a direct result of the recent economic downturn and economic outlook for the future. However, the report also identifies that there continues to be a significant risk that Ireland will not meet the EU Effort Sharing target for 2020, with strong projected growth in emissions from transport and agriculture.

4.6.4 Existing Problems

Legislative objectives governing air and climatic factors in Kilkenny were not identified as being conflicted with.

⁶ Sustainable Energy Ireland (2014) *Energy in Ireland 1990 – 2012*

⁷ EPA (2014) Ireland's Greenhouse Gas Emissions in 2012

4.7 Material Assets

4.7.1 Water Services

4.7.1.1 Irish Water

Since January 2014 the delivery, integration and implementation of strategic water and waste water projects and infrastructural improvements are now the responsibility of the newly established State body 'Irish Water'.

Kilkenny County Council no longer has a direct role in this area; however the Local Authority will work with Irish Water to ensure that the Local Area Plan and any water services investment plan will align with both the National Spatial Strategy and the Regional Planning Guidelines and that the provision of water/waste water services will not be a limiting factor in terms of forecasted growth.

The function and role of Irish Water includes:

- Abstracting and treating water;
- Delivering water and waste water services to homes and businesses;
- Installing water meters and billing domestic and business customers;
- Raising finance to fund improvements and repairs in the water system; and
- Maintaining and operating the water system.

The upgrading of the infrastructure will contribute towards compliance with the Water Framework Directive, EU Urban Waste Water Treatment Directive and Drinking Water Regulations and will help to protect human health and maintain the quality of coastal waters.

The responsibility for the provision of these services now lies with Irish Water, supported by Kilkenny County Council, as appropriate.

4.7.1.2 Waste Water Performance

In 2015, the Callan Waste Water Treatment Plant (WWTP) *passed* water quality standards set down under requirements of the Urban Waste Water Treatment Directive (D0159-01 EPA Licence 09/03/2015).

4.7.1.3 Waste Water Capacity and Demand

The current WWTP has capacity for approximately 4,000 Population Equivalent (PE) and has sufficient capacity to meet the demands of the proposed amendment. The current Urban Area (PE) using the WWTP is 2876 – See Table 4.4 below (Source: Sanitary Services Department of Kilkenny County Council, as of 2016).

Table 4.4 WWTPs in Plan Area

WWTP	Urban Area (p.e.)	WWTP (p.e.)	Treatment Level	2015 Status
Callan – D0159-01	2,876	4,000	Secondary	Pass

4.7.1.4 Drinking Water Performance

Drinking water must be clean and wholesome. That means it must meet the relevant water quality standards and must not contain any other substance or micro-organism in concentrations or numbers that constitute a potential danger to human health.

Compliance with the drinking water requirements is determined by comparing the results of analyses submitted by water suppliers to the standard for 48 parameters specified in the European Communities (Drinking Water) Regulations (No. 2), 2007. To ensure that these standards are met, each water supply must be monitored on a regular basis.

Under Section 58 of the Environmental Protection Agency Act 1992 the EPA is required to collect and verify monitoring results for all water supplies in Ireland covered by the European Communities (Drinking Water) Regulations, 2000. The EPA publishes their results in annual reports which are supported by Remedial Action Lists (RALs). The RAL identifies water supplies which are not in compliance with the Regulations mentioned above.

The Callan Water Supply Scheme is not listed on the EPA's most recent (Q3 2015) Remedial Action List (a list of public water supplies where remedial action is required to ensure compliance with drinking water standards).

4.7.1.5 Capacity and Demand

The current water supply is considered to be sufficient to meet commercial, industrial, residential and agricultural water needs during the LAP period.

4.7.2 Waste Management

EU and National waste management policy can be summarised by the waste hierarchy of prevention, recycling, energy recovery and disposal.

For the purposes of waste management planning, Ireland is now divided into three regions: Southern, Eastern-Midlands and Connacht-Ulster. Callan is located within the Southern Region. The [Southern Region Waste Management Plan](#), adopted on the 14th of May 2015, covers 10 local authorities in the Region and sets out a number of key targets in relation to waste prevention activities.

Callan currently has a number of waste management facilities located in or close to the town including a local civic amenity site and bring bank facilities. These are administered by Kilkenny County Council.

4.7.3 Transport

The N76 is the National Road that bypasses the centre of Callan. It connects to the ring road at Kilkenny to the North-East and to Clonmel to the South-West. The main road to the West of the N76 heads out to Mullinahone. The South road heads through Courtnabooly West in the direction of Carrick-on-Suir. Callan is approximately 45 minutes by bus from Clonmel and 20 minutes from Kilkenny, both of which are served by train from Dublin.

Callan is served by the JJ Kavanagh service which operates services from Monday to Saturday leaving from Clonmel and finishing in Dublin Airport. All buses stop in Kilkenny and Dublin city centre. Callan is also served by Bus Eireann Expressway 007, Dublin-Kilkenny-Clonmel-Cork. There are nine services heading to Cork Monday to Saturday that pick up at Glennons

The Department of Education runs a school bus service for Primary and Secondary School children. The scheme is administered by Bus Eireann with help from Kilkenny VEC.

4.7.4 Existing Problems

It is an objective of the Council, Irish Water and the LAP to protect the water source and wastewater management of the town into the future.

4.8 Cultural Heritage

4.8.1 Introduction

Heritage, by definition, means inherited properties, inherited characteristics and anything transmitted by past ages and ancestors. It covers everything, from objects and buildings to the environment. Cultural heritage includes

physical buildings, structures and objects, complete or in part, which have been left on the landscape by previous and indeed current generations.

Callan is a medieval town and its earliest surviving developments include an Anglo-Norman motte and the Augustine Abbey which are located to the north of the King's River. The majority of the town's physical fabric is evidence of its early development and this is recognised by its designation as a zone of potential archaeological interest.

4.8.2 Archaeological Heritage

4.8.2.1 Introduction

Archaeology is the study of past societies through the material remains left by those societies and the evidence of their environment. Archaeological heritage consists of such material remains (whether in the form of sites and monuments or artefacts in the sense of moveable objects) and environmental evidence. As archaeological heritage can be used to gain knowledge and understanding of the past it is of great cultural and scientific importance.

4.8.2.2 Record of Monuments and Places

Callan's archaeological heritage is protected under the National Monuments Acts (1930-2004), Natural Cultural Institutions Act 1997 and the Planning Acts. The Record of Monuments and Places (RMP) is an inventory, established under Section 12 of the National Monuments (Amendment) Act 1994, of sites and areas of archaeological significance, numbered and mapped. The RMP includes all known monuments and sites of archaeological importance dating to before 1700 AD, and some sites which date from after 1700 AD. There is a Recorded Monument within the amended area, ref. KK026-002 'Castle' located in Westcourt Demesne (shown in figure 4.10 below) and Callan town is a zone of archaeological potential.

According to Colín O Drisceoil's report⁸, c.1940 there was a catastrophic fire at West Court house and the house was abandoned and later knocked. The rubble heap to the west of the walled garden marks the location of the house. Its foundations, perhaps cellars, and related structures probably survive below ground level.

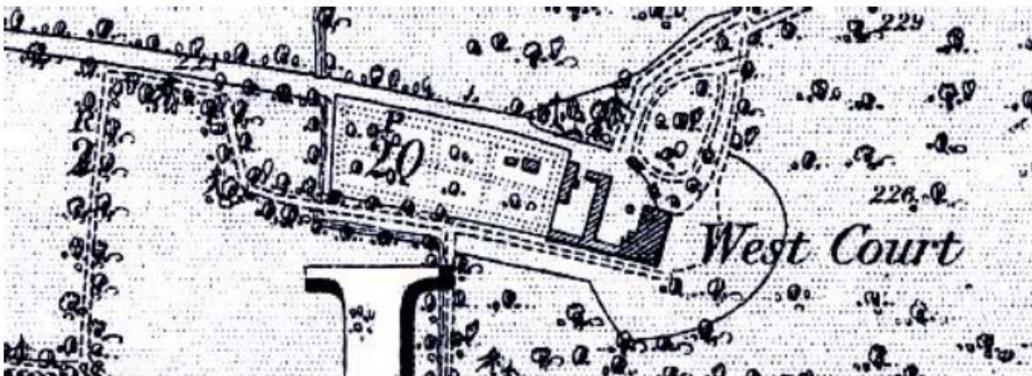


Figure 4: West Court House and walled garden as depicted on the 1842 Ordnance Survey map (surveyed 1839).

4.8.3 Architectural Heritage

4.8.3.1 Introduction

The term architectural heritage is defined in the Architectural Heritage (National Inventory) and Historic Monuments Act 1999 as meaning all: structures and buildings together with their settings and attendant grounds,

⁸ O'Driscóil, Cólín (2014) 'Historic Landscape Assessment Report: Westcourt Demesne, Callan, Co. Kilkenny'.

fixtures and fittings; groups of structures and buildings; and, sites which are of technical, historical, archaeological, artistic, cultural, scientific, social, or technical interest.

4.8.3.2 Record of Protected Structures

The Record of Protected Structures (RPS) included in the County Development Plan is legislated for under the Planning and Development Act 2000 as amended. There is one Protected Structure within the Amendment area. This is the 'Ruin of a seven bay, two storey house, c18th'. The photograph below illustrate that there is no above ground structure visible on the site, with the exception of the walled garden (foreground). The walled garden of West Court house measures 111m x 42m and was situated to the west of the house complex.

Current entries to the RPS for the surrounding area are mapped on Figure 4.7. There are no entries to the National Inventory of Architectural Heritage (NIAH) in the Amendment area.



Figure 9: Aerial photograph taken c.2007 of the West Court house walled garden (courtesy Patrick Lydon).

4.8.3.3 Architectural Conservation Area

An Architectural Conservation Area (ACA) is a place, area, group of structures or townscape, which is of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest or contributes to the appreciation of a Protected Structure. In an ACA, protection is placed on the external appearance of such areas or structures. Planning permission must be obtained before significant works can be carried out to the exterior of a structure in an ACA, which might alter the character of the structure, or of the ACA.

The Callan ACA is mapped on Figure 4.7. The area to which the Amendment refers is located outside of the ACA.

4.8.4 Existing Problems

The context of archaeological and architectural heritage has changed over time within the Plan area however no existing conflicts with legislative objectives governing archaeological and architectural heritage have been identified.

Figure 4.6 Archaeological Heritage - Entries to the Record of Monuments and Places and Zone of Archaeological Importance

Source: Kilkenny County Council (2015)

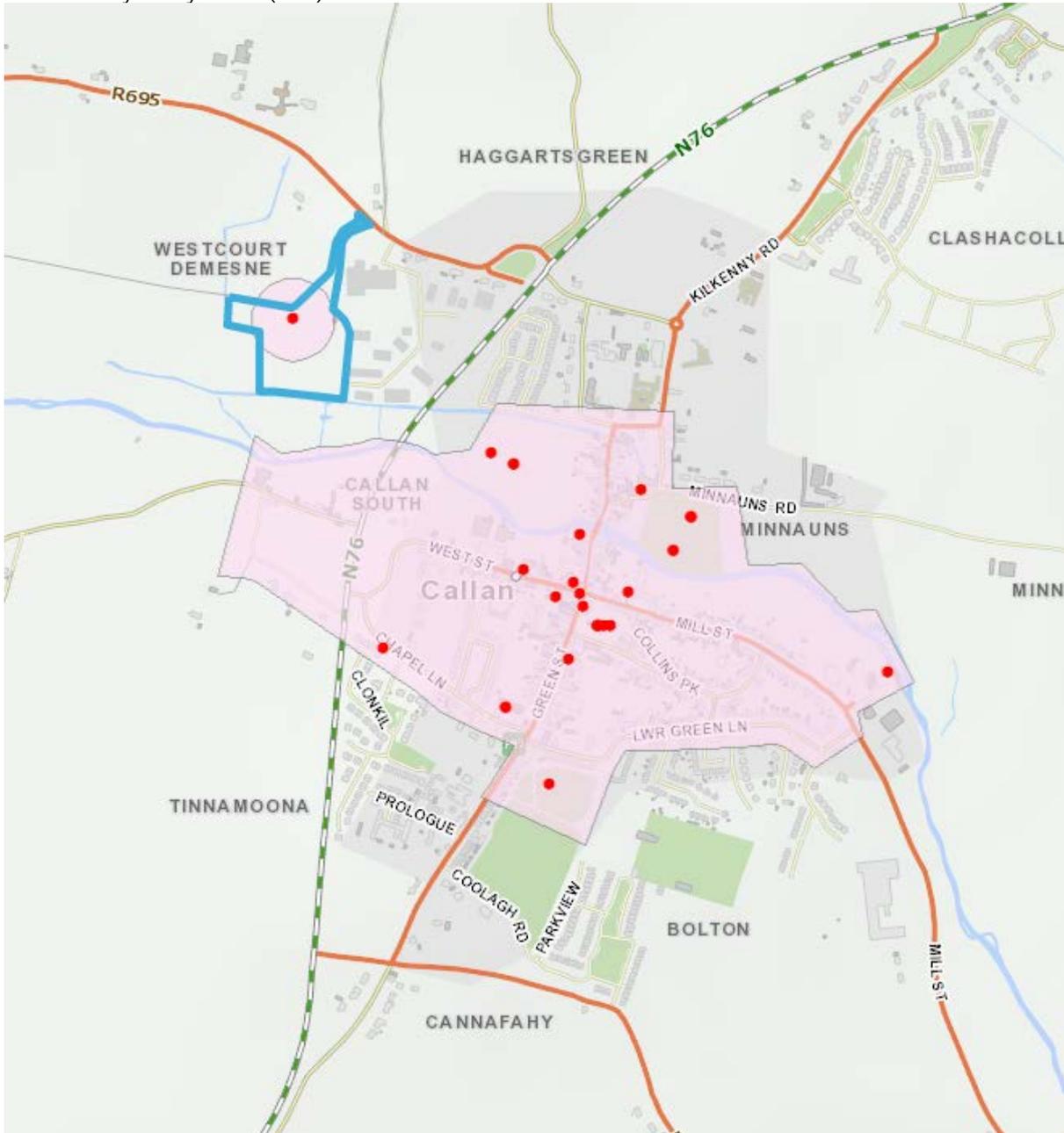
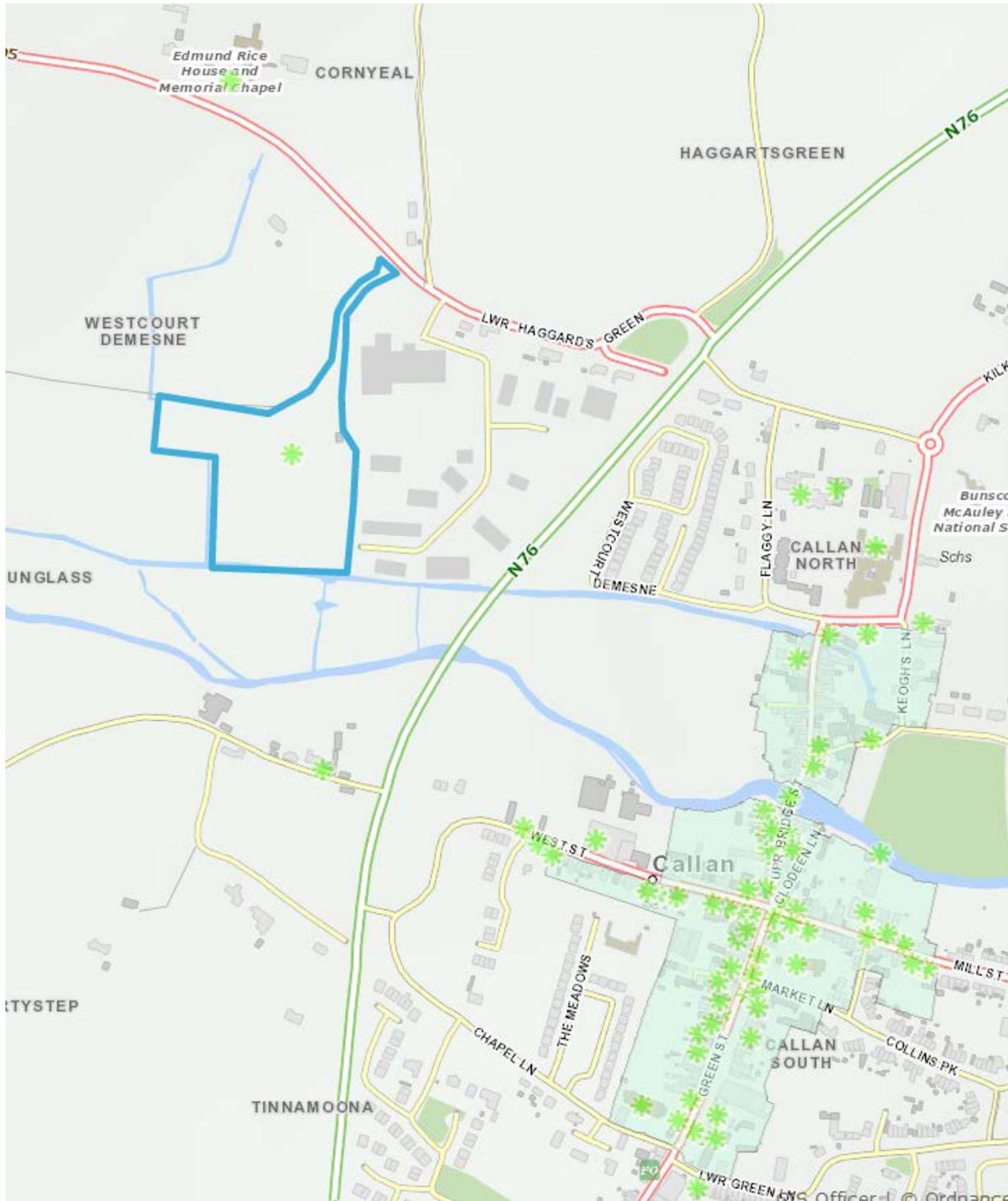


Figure 4.7 Architectural Heritage - Entries to the Record of Protected Structures and Architectural Conservation Area

Source: Kilkenny County Council (2015)



4.9 Landscape

4.9.1 Introduction

Landscapes are areas which are perceived by people and are made up of a number of layers: landform, which results from geological and geomorphological history; land cover, which includes vegetation, water, human settlements, and; human values which are a result of historical, cultural, religious and other understandings and interactions with landform and landcover.

4.9.2 Legislation

The importance of landscape and visual amenity and the role of its protection are recognised in the Planning and Development Act 2000 as amended, which requires that Plans include objectives for the preservation of the landscape, views and the amenities of places and features of natural beauty.

4.9.3 Landscape Character Assessment

4.9.3.1 Overview

A Landscape Character Assessment (LCA) is a study of a given landscape to determine its 'character'. Landscape character is the combination of physical, as well as, perceived aspects of the landscape.

The Kilkenny LCA was produced as part of the Kilkenny County Development Plan 2014-2020 -2014 and has subsequently been incorporated into the 2014-2020 County Plan. The LCA divides the County into Landscape Character Areas i.e. unique, geographically-specific areas of a particular landscape type.

The aim of the County Kilkenny LCA is to provide a tool for decision making regarding development control and to influence landscape policy at local level. In considering landscape character in the area, the Council acknowledges the importance of taking into account adjoining landscape character, landscape features and designations, including those in adjoining counties.

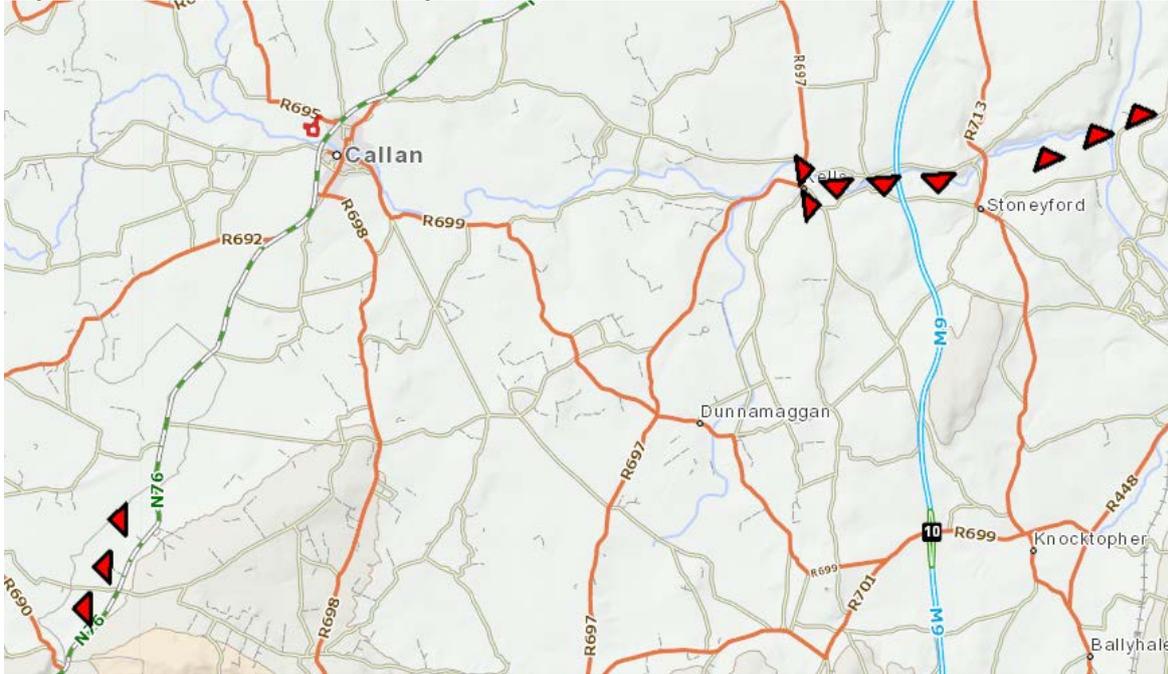
The town of Callan is located in a 'Lowland', classified as the 'Kilkenny Western Basin' area as set out in Figure 8.2 of the County Development Plan.

4.9.4 Views and Prospects

It is the policy of the Council to protect scenic views and routes within the County. Those proposing development on lands affected by the protected views will be required to demonstrate that the development proposals will allow for the public appreciation of the protected views as well as ensuring protection of the setting and context of the monument, how it would have sat within the wider landscape and having regard to the place as well as the monument. Where appropriate, photomontages will be required.

The nearest protected views, as per the County Development Plan, to the subject site are shown on the following map.

Map 4.17: Protected Views and Proposed Amendment



4.9.5 Existing Environmental Problems

Developments have resulted in changes to the visual appearance of the landscape within the Plan area however legislative objectives governing landscape and visual appearance were not identified as being conflicted with.

4.10 Overlay of Sensitivities

In order to illustrate the sensitivities described above,

Figure 4.8 is a composite overlay of heritage sensitivities for the Amendment area. This illustrates that there is a Recorded Monument and Protected Structure within the Amendment area, and that the River Barrow River Nore SAC, a Natura 2000 site, is located immediately to the south.

The occurrence of multiple sensitivities in any location does not preclude development; rather it flags at a strategic level that the mitigation measures - which have already been integrated into the special development objective as part of the proposed Amendment- will need to be complied with in order to ensure that the implementation of the Plan contributes towards environmental protection.

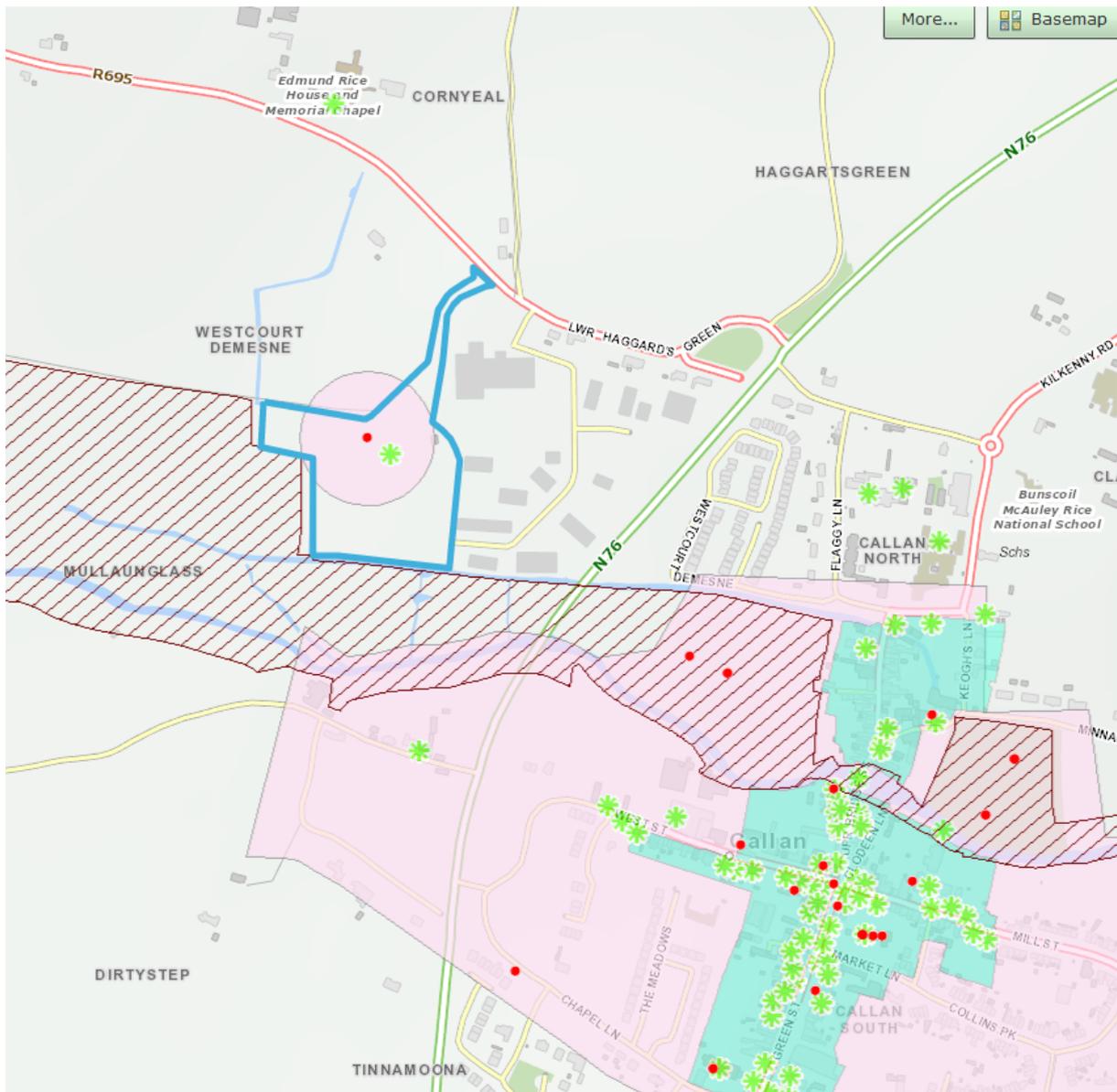


Figure 4.8 Composite map of Heritage Sensitivities

Section 5 Strategic Environmental Objectives

5.1 Introduction

Strategic Environmental Objectives (SEOs) are methodological measures developed from policies which generally govern environmental protection objectives established at international, Community or Member State level e.g. the environmental protection objectives of various European Directives which have been transposed into Irish law and which are required to be implemented.

The SEOs are set out under a range of topics and are used as standards against which the provisions of the Plan and the alternatives are evaluated in order to help identify which provisions would be likely to result in significant environmental effects and where such effects would be likely to occur, if - in the case of adverse effects - unmitigated.

SEOs are distinct from the objectives of the Plan - although they will often overlap - and they are not given statutory weight by virtue of their use in Strategic Environmental Assessments.

The SEOs are linked to indicators which can facilitate monitoring the environmental effects of the Plan as well as identifying targets which the Plan can help work towards.

SEOs were developed taking into account the requirements of the Planning & Development Regulations 2001-2015, the SEA Guidelines for Planning Authorities 2004 and feedback provided by the environmental authorities.

5.2 Strategic Environmental Objectives

The following are the SEO's selected for the proposed Amendment, accompanied by selected indicators and targets.

Environmental Parameter	No.	Objective (EPO)	Indicators	Targets
Biodiversity, fauna and flora	B1	Protect, and where appropriate, enhance biodiversity, particularly protected areas and protected species including ecological linkages / corridors.	B1i: Conservation status of habitats and species as assessed under Article 17 of the Habitats Directive B1ii: Number of significant impacts on relevant habitats and species B1iii: Number of significant impacts on the protection of species listed on Schedule 5 of the Wildlife Act 1976.	B1i: Maintenance of favourable conservation status for all habitats and species protected under national and international legislation to be unaffected by implementation of the Plan as amended ⁹ . B1ii: Avoid significant impacts on relevant habitats and species. B1iii: No significant impacts on the protection of species listed on Schedule 5 of the Wildlife Act 1976.
Population and Human Health	P1	Improve people's quality of life based on high-quality	Occurrence (any) of a spatially concentrated deterioration in human	No spatial concentrations of health problems arising from environmental factors as a

⁹ With regard to Natura 2000 sites there should be no significant effects except as provided for in Section 6(4) of the Habitats Directive, There must be:

- (a) no alternative solution available;
- (b) imperative reasons of overriding public interest for the plan to proceed; and
- (c) adequate compensatory measures in place.

		residential, working and recreational environments and on sustainable travel patterns.	health arising from environmental factors resulting from development provided for by the Plan, as identified by the Health Service Executive and Environmental Protection Agency	result of implementing the Plan.
Soil	S1	To avoid damage to the hydrogeological and ecological function of the soil resource	Soil extent and hydraulic connectivity	To minimise reductions in soil extent and hydraulic connectivity.
Water	W1	To prevent pollution and contamination of ground water	Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC	Not to affect the ability of groundwaters to comply with Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC
	W2	To comply as appropriate with the provisions of the Planning System and Flood Risk Management: Guidelines for Planning Authorities (DEHLG, 2009)	Number of incompatible developments granted permission on lands which pose - or are likely to pose in the future - a significant flood risk	Minimise developments granted permission on lands which pose - or are likely to pose in the future - a significant flood risk in compliance with <i>The Planning System and Flood Risk Management Guidelines for Planning Authorities</i>
	W3	To maintain and improve, where possible, the quality and status of surface waters	Classification of Overall Status (comprised of ecological and chemical status) under the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (SI No. 272 of 2009)	Not to cause deterioration in the status of any surface water or affect the ability of any surface water to achieve 'good status' by 2015
Air and Climatic Factors	A1	To reduce travel related emissions to air and to encourage modal change from car to more sustainable forms of transport	Percentage of population travelling to work, school or college by non-mechanical means	An increase in the percentage of the population travelling to work, school or college by public transport where available or non-mechanical means
Material Assets	M1	To serve new development with adequate and appropriate waste water treatment	Number of new developments granted permission which can be adequately and appropriately served with waste water treatment over the lifetime of the	All new developments granted permission to be connected to and adequately and appropriately served by waste water treatment over the lifetime of the Plan

	M2	To serve new development with adequate drinking water that is both wholesome and clean	Plan Number of non-compliances with the 48 parameters identified in the European Communities (Drinking Water) Regulations (No. 2) 2007 which present a potential danger to human health as a result of implementing the Plan	No non-compliances with the 48 parameters identified in the European Communities (Drinking Water) Regulations (No. 2) 2007 which present a potential danger to human health as a result of implementing the Plan
	M3	To reduce waste volumes, minimise waste to landfill and increase recycling and reuse	Total collected and brought household waste Packaging recovered (t) by self-complying packagers	Minimise increases in and, where possible, reduce household waste generation Maximise increases in packaging recovered (t) by self-complying packagers
Cultural Heritage (architectural and archaeological)	H1	To protect archaeological heritage including the zone of Archaeological Heritage and entries to the Record of Monuments and Places and/or their context	Percentage of entries to the Record of Monuments and Places protected from significant adverse effects arising from new development granted permission under the Plan.	Protect the zone of Archaeological Heritage and entries to the Record of Monuments and Places from significant adverse effects arising from new development granted permission under the Plan
	H2	To protect architectural heritage including entries to the Record of Protected Structures and Architectural Conservation Area and their context	Percentage of entries to the Record of Protected Structures and Architectural Conservation Area and their context protected from significant adverse effects arising from new development granted permission under the Plan	Protect entries to the Record of Protected Structures and Architectural Conservation Area and their context from significant adverse effects arising from new development granted permission under the Plan.
Landscape	L1	Conserve and enhance valued natural and historic landscapes, their character and features within them.	Number of complaints received from statutory consultees regarding avoidable adverse visual impacts on the landscape resulting from development which is granted permission under the Plan.	No developments permitted which result in avoidable adverse visual impacts on the landscape from development which is granted permission under the Plan.

Section 6 Alternatives

The SEA Directive requires that reasonable alternatives (taking into account the objectives and the geographical scope of the plan or programme) are identified, described and evaluated for their likely significant effects on the environment.

The description of the environmental baseline (both maps and text) and Strategic Environmental Objectives (SEOs) are used in the evaluation of alternatives.

Kilkenny County Council in preparing the Amendment to the Callan Local Area Plan 2009-2020 developed three alternative development strategies as follows:

- Alternative A is a do-nothing scenario whereby the site remains un-zoned and outside the Callan LAP boundary as it is presently.
- Alternative B provides for a zoning change to 'Residential' with no site specific development objective to integrate environmental considerations arising from the SEA, AA and SFRA processes.
- Alternative C provides for a zoning change to 'Agriculture' with a site specific objective that integrates environmental considerations identified by the AA, SEA and SFRA into the proposal. These considerations were identified during the SEA Scoping exercise, and were informed by both the AA and SFRA and by submissions from the environmental authorities.

These alternatives are mapped on Figure 6.1, Figure 6.2 and Figure 6.3.

Figure 6.1 Alternative A – Do Nothing Scenario

Source: Current Zoning Map for Callan LAP, as amended.

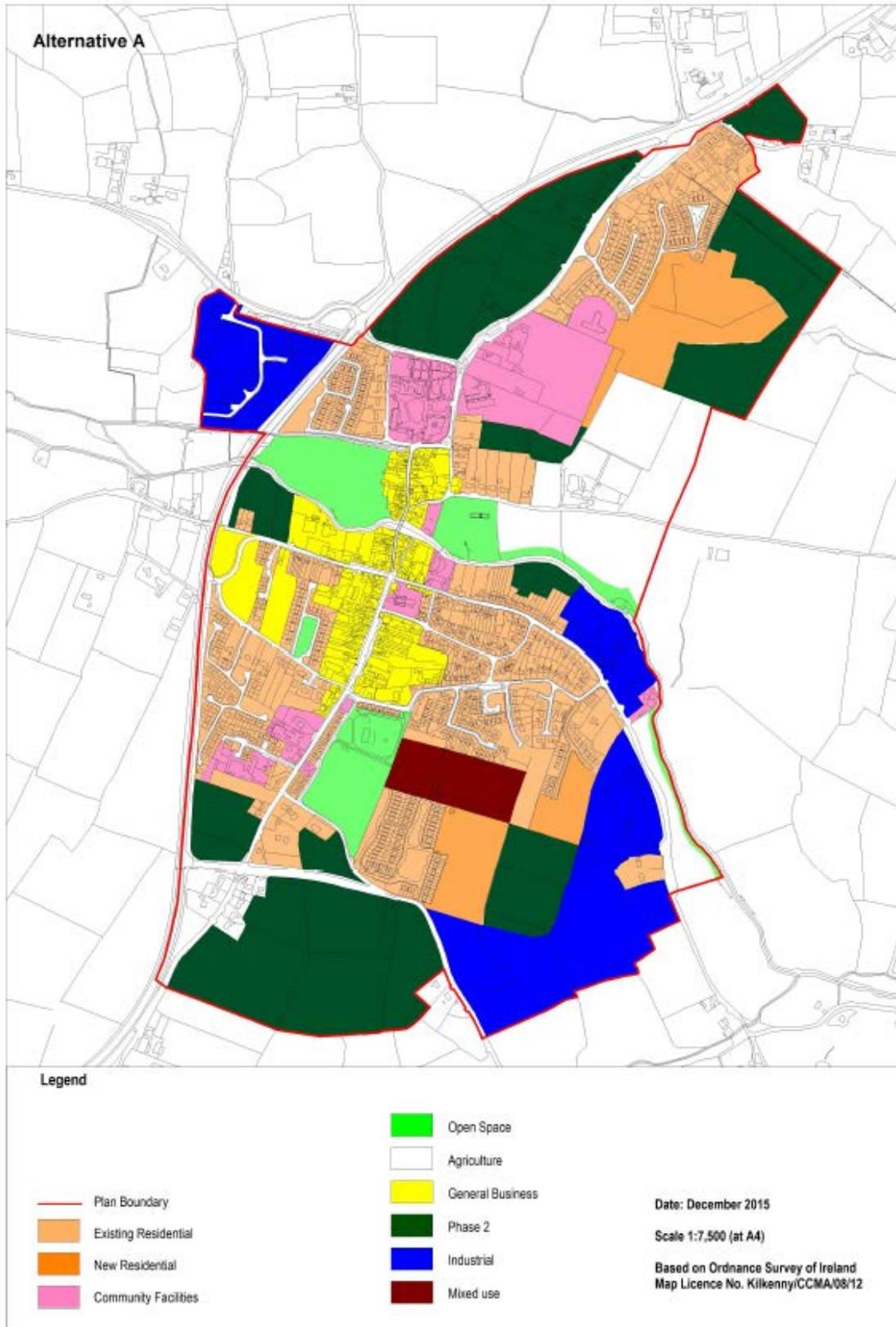


Figure 6.2 Alternative B

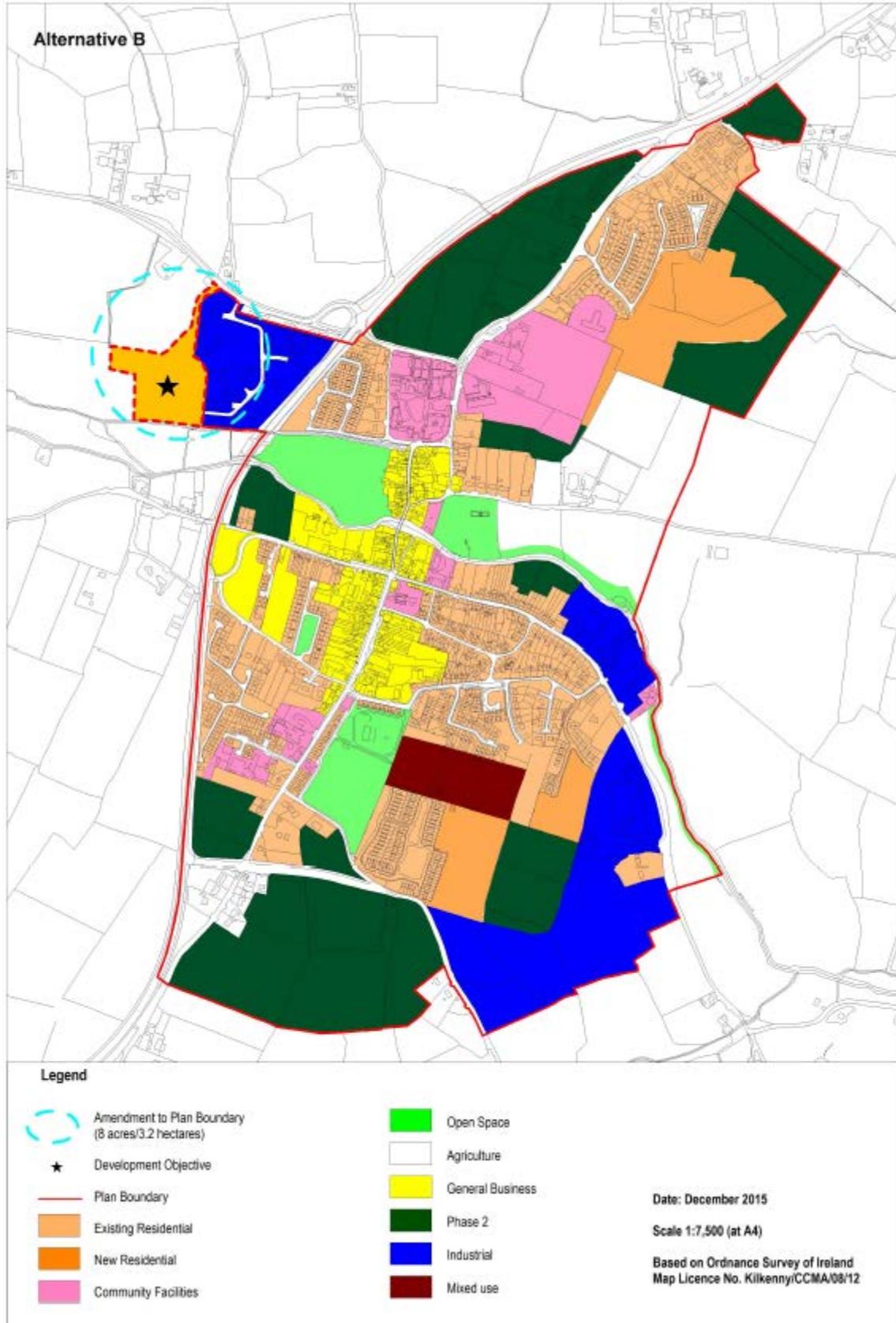
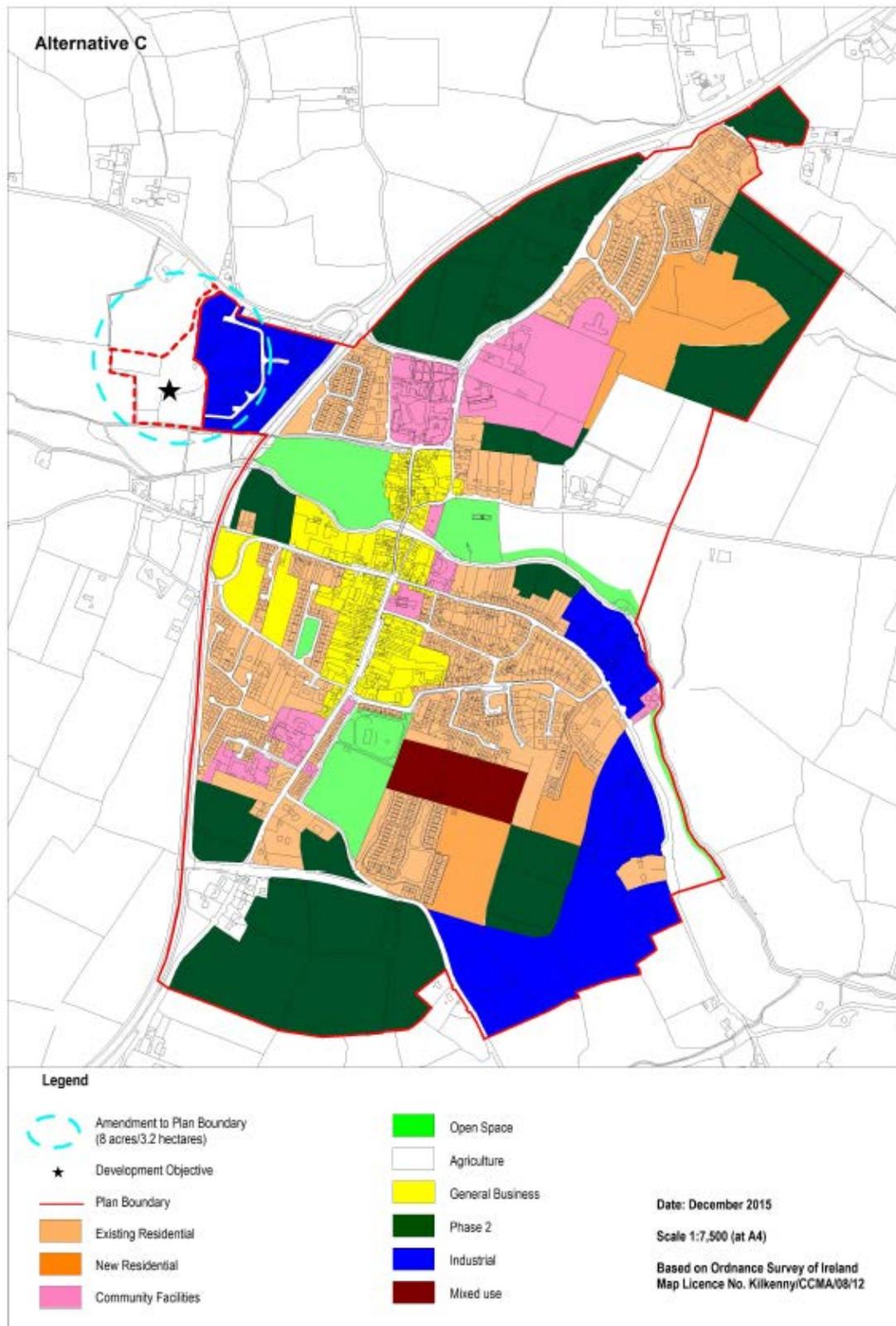


Figure 6.3 Alternative C



Section 7 Evaluation of Alternatives

7.1 Introduction

The description of the environmental baseline together with the maps provided in Section 4 of this report is used in the evaluation.

Strategic Environmental Objectives (SEOs) identified in Section 4 and reproduced overleaf are also used.

The provisions of the alternatives are evaluated using compatibility criteria (see Table 7.2 below) in order to determine how they would be likely to affect the status of the SEOs. The SEOs and the alternatives are arrayed against each other to identify which interactions - if any - would cause effects on specific components of the environment. Where the appraisal identifies a likely conflict with the status of an SEO the relevant SEO code is entered into the conflict column - e.g. B1 which stands for the SEO likely to be affected - in this instance 'to ensure compliance with the Habitats and Birds Directives with regard to the protection of Natura 2000 Sites and Annexed habitats and species'¹⁰.

The interactions identified are reflective of likely significant environmental effects¹¹;

1. Interactions that would be likely to improve the status of a particular SEO would be likely to result in a significant positive effect on the environmental component to which the SEO relates.
2. Interactions that would probably conflict with the status of an SEO and would be unlikely to be mitigated would be likely to result in a significant negative effect on the environmental component to which the SEO relates.
3. Interactions that would potentially conflict with the status of an SEO and would be likely to be mitigated would be likely to result in potential significant negative effects however these effects could be mitigated (for the chosen alternative these effects are mitigated by measures which have been integrated into the Plan).

Table 7.1 Strategic Environmental Objectives¹²

SEO Code	SEO
B1	Protect, and where appropriate, enhance biodiversity, particularly protected areas and protected species including ecological linkages / corridors.
P1	Improve people's quality of life based on high-quality residential, working and recreational environments and on sustainable travel patterns.
S1	To avoid damage to the hydrogeological and ecological function of the soil resource
W1	To prevent pollution and contamination of ground water
W2	To comply as appropriate with the provisions of the Planning System and Flood Risk Management: Guidelines for Planning Authorities (DEHLG, 2009)
W3	To maintain and improve, where possible, the quality and status of surface waters
A1	To reduce travel related emissions to air and to encourage modal change from car to

¹⁰ 'Annexed habitats and species' refers to those listed under Annex I, II & IV of the EU Habitats Directive and Annex I of the EU Birds Directive.

¹¹ These effects include secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects.

¹² See Section 5 for a description of Strategic Environmental Objectives.

	more sustainable forms of transport
M1	To serve new development with adequate and appropriate waste water treatment
M2	To serve new development with adequate drinking water that is both wholesome and clean
M3	To reduce waste volumes, minimise waste to landfill and increase recycling and reuse
H1	To protect archaeological heritage including the zone of archaeological heritage and entries to the Record of Monuments and Places and/or their context.
H2	To protect architectural heritage including entries to the Record of Protected Structures and Architectural Conservation Area and their context
L1	Conserve and enhance valued natural and historic landscapes, their character and features within them.

Table 7.2 Criteria for appraising the effect on SEOs

Likely to Improve status of SEOs	Probable Conflict with status of SEOs- unlikely to be fully mitigated	Potential Conflict with status of SEOs- likely to be mitigated
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7.2 Evaluation of Alternative A

Alternative A involves the 'do nothing' approach whereby the site remains un-zoned as it is presently. The 'un-zoned' nature of the site generally does not favour new built development and for this reason Alternative A would be likely to continue the protection of the following environmental components:

- Biodiversity and Flora and Fauna (including the River Barrow and Nore cSAC)
- Population and Human Health
- Soil
- Water
- Cultural Heritage
- Landscape

There would be no new potential conflicts or associated effects arising with Alternative A, above those which have already been predicted by and mitigated by the SEA of the existing Plan (these potential conflicts are detailed below). This is because Alternative A does not propose a change to the Plan.

The likelihood of potential and residual adverse effects occurring under Alternative A would be far lower than Alternatives B and C as the un-zoned nature of the site generally does not favour new built development.

Potential conflicts with environmental components would however exist (due to a small number of potential uses which would be considered as being Open for Consideration by the current Plan e.g. rural housing) however these conflicts would be fully mitigated. Potential and residual adverse effects arising from Alternative A are detailed on Table 7.3.

Table 7.3 Potential and Residual Adverse Effects with respect to Alternative A

Environmental Component	Potential Adverse Impacts if unmitigated, if the site is developed (not likely under this alternative)	Residual adverse effect, under mitigation
Biodiversity and Flora and Fauna	<ul style="list-style-type: none"> o Loss of biodiversity with regard to Natura 2000 Sites and Annexed habitats and species o Loss of biodiversity with regard to ecological connectivity and stepping stones o Loss of non-designated biodiversity and flora and fauna 	<p><i>No effects on River Barrow and Nore cSAC</i></p> <p><i>Possible</i> loss of an extent of non-protected habitats arising from the replacement of semi-natural land covers with artificial surfaces</p>
Population and Human Health	Spatially concentrated deterioration in human health arising from effects upon environmental vectors	Potential interactions with flood risk – see those below
Soil	Damage to the hydrogeological and ecological function of the soil resource	<i>Possible</i> loss of an extent of soil function arising from the replacement of semi-natural land covers with artificial surfaces
Water	<ul style="list-style-type: none"> o Adverse impacts upon the status and quality of water bodies o Increase in the risk of flooding 	<p>No effects on water quality.</p> <p><i>Flood related risks remain due to uncertainty with regard to extreme weather events</i></p>
Material Assets	<ul style="list-style-type: none"> o Failure to provide adequate and appropriate waste water treatment o Failure to comply with drinking water regulations and serve new development with adequate drinking water that is both wholesome and clean o Increases in waste levels 	None – The current County Development Plan 2014-2020 contains relevant mitigating provisions. See Section 8.3 of this Report.
Air and Climatic Factors	Failure to contribute towards sustainable transport and associated impacts	<i>Possible</i> failure to contribute towards sustainable transport and associated impacts
Cultural Heritage	<ul style="list-style-type: none"> o Effects on Record of Monuments and Places. o Effects on unknown archaeological heritage o Effects on entries to the Records of Protected Structures and other architectural heritage 	<p><i>Possible</i> effects on unknown archaeological heritage.</p> <p><i>Possible</i> alteration to the context and setting of architectural and archaeological heritage however these would occur in compliance with legislation</p>
Landscape Designations ¹³	Occurrence of adverse visual impacts	None

¹³ The Plan already contributes towards the protection of landscape components. The landscape at the site will change overtime as a result of natural changes in vegetation cover combined with new developments, where these are permitted.

7.3 Evaluation of Alternative B

Alternative B provides for a zoning change to 'New Residential' with no site specific development objective to integrate environmental considerations arising from the SEA, AA and SFRA processes.

The likelihood of potential and residual adverse effects occurring under Alternative B would be higher than Alternatives A and C as the Residential zoning objective favours new built development. Under Alternative B, two significant residual adverse effects would be likely to occur that would not occur under the other alternatives:

1. Effects on the River Barrow and Nore cSAC, in conflict with the requirements of the Habitats Directive; and
2. Increases in levels of flood risk, in conflict with the requirements of the Flood Risk Management Guidelines, and associated interactions with human health.

The Appropriate Assessment (AA) process, undertaken alongside this SEA, identified that if the lands located within the cSAC and proposed to be zoned Residential by Alternative A were to be built upon, then residual effects on the cSAC would be likely.

The Strategic Flood Risk Assessment (SFRA) process, undertaken alongside this SEA, identified that residential uses should be excluded from the part of the site that has been determined to be Flood Zone B. Potential and residual adverse effects arising from Alternative B are detailed on Table 7.4.

Table 7.4 Potential and Residual Adverse Effects with respect to Alternative B

Environmental Component	Potential Adverse Impacts if unmitigated, if the site is developed	Residual adverse effect, under mitigation
Biodiversity and Flora and Fauna	<ul style="list-style-type: none"> o Loss of biodiversity with regard to Natura 2000 Sites and Annexed habitats and species o Loss of biodiversity with regard to ecological connectivity and stepping stones o Loss of non-designated biodiversity and flora and fauna 	<p><i>Adverse effect on River Barrow and Nore cSAC</i></p> <p>Loss of an extent of non-protected habitats arising from the replacement of semi-natural land covers with artificial surfaces</p>
Population and Human Health	Spatially concentrated deterioration in human health arising from effects upon environmental vectors	Interactions with increased levels of flood risk – see below
Soil	Damage to the hydrogeological and ecological function of the soil resource	Loss of an extent of soil function arising from the replacement of semi-natural land covers with artificial surfaces
Water	<ul style="list-style-type: none"> o Adverse impacts upon the status and quality of water bodies o Increase in the risk of flooding 	<p>No effects on water quality.</p> <p><i>Increases in levels of flood risk, in conflict with the requirements of the Flood Risk Management Guidelines</i></p>
Material Assets	<ul style="list-style-type: none"> o Failure to provide adequate and appropriate waste water treatment 	None – The current County Development Plan 2014-2020 contains relevant mitigating provisions. See

	<ul style="list-style-type: none"> o Failure to comply with drinking water regulations and serve new development with adequate drinking water that is both wholesome and clean o Increases in waste levels 	Section 8.3 of this Report.
Air and Climatic Factors	Failure to contribute towards sustainable transport and associated impacts	Failure to contribute towards sustainable transport and associated impacts
Cultural Heritage	<ul style="list-style-type: none"> o Effects on Record of Monuments and Places. o Effects on unknown archaeological heritage o Effects on entries to the Records of Protected Structures and other architectural heritage 	<p><i>Possible</i> effects on unknown archaeological heritage.</p> <p><i>Possible</i> alteration to the context and setting of architectural and archaeological heritage however these would occur in compliance with legislation</p>
Landscape Designations ¹⁴	Occurrence of adverse visual impacts	None

7.4 Evaluation of Alternative C

Alternative C provides for the zoning of the site to 'Agriculture' and the inclusion of a site specific objective that integrates environmental considerations - identified by the SEA, AA and SFRA – into the proposal. These considerations (the River Barrow and Nore cSAC, flood risk areas and archaeological monitoring) were identified during the SEA Scoping exercise and were informed by both the AA and SFRA and by submissions from environmental authorities.

The likelihood of potential and residual adverse effects occurring under Alternative C would be higher than Alternative A as the site specific development objective favours new built development. However the two significant residual adverse effects that would be likely to occur under Alternative B would not occur under Alternative C:

1. Under Alternative C, protection of the cSAC would be maintained by the provisions of the site specific objective which includes various to prevent any adverse effects upon the cSAC arising from development.
2. Under Alternative C, the Flood Risk Zones for the site would be established and residential uses excluded from part of the site would mitigate risk.

Potential and residual adverse effects arising from Alternative C are detailed on Table 7.5.

¹⁴ The Plan already contributes towards the protection of landscape components. The landscape at the site will change overtime as a result of natural changes in vegetation cover combined with new developments, where these are permitted.

Table 7.5 Potential and Residual Adverse Effects with respect to Alternative C

Environmental Component	Potential Adverse Impacts if unmitigated, if the site is developed	Residual adverse effect, under mitigation
Biodiversity and Flora and Fauna	<ul style="list-style-type: none"> o Loss of biodiversity with regard to Natura 2000 Sites and Annexed habitats and species o Loss of biodiversity with regard to ecological connectivity and stepping stones o Loss of non-designated biodiversity and flora and fauna 	<p><i>No effects on River Barrow and Nore cSAC</i></p> <p>Loss of an extent of non-protected habitats arising from the replacement of semi-natural land covers with artificial surfaces</p>
Population and Human Health	Spatially concentrated deterioration in human health arising from effects upon environmental vectors	Interactions with flood risk – see below
Soil	Damage to the hydrogeological and ecological function of the soil resource	Loss of an extent of soil function arising from the replacement of semi-natural land covers with artificial surfaces
Water	<ul style="list-style-type: none"> o Adverse impacts upon the status and quality of water bodies o Increase in the risk of flooding 	<p>No effects on water quality.</p> <p><i>Flood related risks remain due to uncertainty with regard to extreme weather events</i></p>
Material Assets	<ul style="list-style-type: none"> o Failure to provide adequate and appropriate waste water treatment o Failure to comply with drinking water regulations and serve new development with adequate drinking water that is both wholesome and clean o Increases in waste levels 	None – The current County Development Plan 2014-2020 contains relevant mitigating provisions. See Section 8.3 of this Report.
Air and Climatic Factors	Failure to contribute towards sustainable transport and associated impacts	Failure to contribute towards sustainable transport and associated impacts
Cultural Heritage	<ul style="list-style-type: none"> o Effects on Record of Monuments and Places. o Effects on unknown archaeological heritage o Effects on entries to the Records of Protected Structures and other architectural heritage 	<p><i>Possible</i> effects on unknown archaeological heritage.</p> <p><i>Possible</i> alteration to the context and setting of architectural and archaeological heritage however these would occur in compliance with legislation</p>
Landscape Designations ¹⁵	Occurrence of adverse visual impacts	None

¹⁵ The Plan already contributes towards the protection of landscape components. The landscape at the site will change overtime as a result of natural changes in vegetation cover combined with new developments, where these are permitted.

7.4.1 Evaluation of Alternatives against SEO's

Table 7.3 Comparative Evaluation of Alternative Development Strategies

Alternatives	Likely to Improve status of SEOs	Potential Conflict with status of SEOs - likely to be mitigated	Probable Conflict with status of SEOs- unlikely to be mitigated
Alternative A Do nothing approach	B1 P1 S1 W1 W2 W3 H1 H2 L1	B1 P1 S1 W1 W2 W3 A1 M1 M2 M3 H1 H2 L1	
Alternative B Residential Zoning and no site specific objective		S1 W1 W3 A1 M1 M2 M3 H1 H2 L1	B1 P1 W2
Alternative C Agriculture zoning and site specific objective		B1 P1 S1 W1 W2 W3 A1 M1 M2 M3 H1 H2 L1	

7.4.2 The Selected Alternative

The Alternative Scenario for the Proposed Amendment which has emerged from the planning/SEA process is Alternative C (see Figure 6.3).

The Proposed Amendment has been developed by the Planning Team and placed on public display by the Council having regard to both:

1. The environmental effects which were identified by the SEA (and AA and SFRA) and are detailed above; and
2. Planning - including social and economic - effects which also were considered by the Council.

7.5 Additional Notes on Evaluation

7.5.1 Appropriate Assessment

A Stage 2 Appropriate Assessment (AA) has been undertaken alongside the preparation of the Plan. The requirement for AA is provided under the EU Habitats Directive (Directive 1992/43/EEC).

The AA concluded that the Plan will not affect the integrity of the Natura 2000 network¹⁶.

The preparation of the Plan, SEA, AA and SFRA has taken place concurrently and the findings of the AA and SFRA have informed both the Plan and the SEA. All recommendations made by the AA and SEA were integrated into the Plan.

7.5.2 Strategic Flood Risk Assessment

A Strategic Flood Risk Assessment (SFRA) was undertaken alongside the Draft Plan. The requirement for SFRA is provided under 'The Planning System and Flood Risk Management Guidelines for Planning Authorities' (DEHLG, 2009).

The Strategic Flood Risk Assessment (SFRA) which has been undertaken on the Proposed Amendment has mapped boundaries for Indicative Flood Risk Zones at the subject lands. The SFRA concluded that the Proposed Amendment is in compliance with the Flood Risk Management Guidelines.

The preparation of the Proposed Amendment, SEA and SFRA has taken place concurrently and the findings of the SFRA have informed both the Proposed Amendment and the SEA.

7.5.3 Potential Adverse Effects and their Determination

Environmental impacts which occur, if any, will be determined by the nature and extent of multiple or individual projects and site specific environmental factors.

Avoidance of conflict with SEOs and the environment is dependent upon compliance with the mitigation measures which either are already in force through the existing Plan or have been integrated into the Proposed Amendment.

7.5.4 Cumulative Effects

Cumulative effects are one of the types of effects which have been considered in the assessment of the alternatives. Cumulative effects can be described as the addition of many small impacts to create one larger, more significant, impact.

There are 2 types of potential cumulative effects that have been considered, namely:

Potential intra-Plan cumulative effects - these arise from the interactions between different types of potential environmental effects resulting from a Plan; and,

¹⁶ Except as provided for in Section 6(4) of the Habitats Directive, viz. There must be:

(a) no alternative solution available;

(b) imperative reasons of overriding public interest for the plan to proceed; and

(c) adequate compensatory measures in place.

□ Potential inter-Plan cumulative effects - these arise when the effects of the implementation of one plan occur in combination with those of other plans or developments.

A variety of potential intra-Plan cumulative environmental effects occur when considering the implementation of the alternatives. The interrelationships between environmental components that determine these potential effects are identified on Table 6.7 e.g. interrelationships between: human health and water quality; human health and air quality; and human health and flood risk.

With regard to potential inter-Plan cumulative environmental effects, these occur as a result of the combination of: potential environmental effects which are identified by the assessment as arising from alternatives; and the effects arising from other plans or developments. Other Plans and developments which have been considered by the assessment of environmental effects include those which are detailed under Section 2.2 Relationship with other relevant Plans and Programmes and those which are detailed throughout Section 4 and Section 5.

The assessment of the likely inter-Plan cumulative environmental effects requires knowledge of the likely effects of all plans/developments under consideration. The assessment is limited in certain instances as there has been limited assessment of the likely types of developments provided for by other policies, plans and programmes that could occur in combination with the implementation of the LAP. Taking into account available information, the key potential inter-Plan cumulative environmental effects that are included in the assessment relate to effects upon the status of surface and ground waters and associated interactions (in combination with the Regional Planning Guidelines for the South-East Region, Development Plans, Local Area Plans and River Basin Management Plans), such as those related to ecology and drinking water resources, and potential effects upon the landscape.

7.5.5 Interrelationship between Environmental Components

The SEA Directive requires the Environmental Report to include information on the likely significant effects on the environment, including on issues such as biodiversity, fauna, flora, population, human health, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors.

Likely significant effects on environmental components which are identified include those which are interrelated; implementation of the Plan will not affect the interrelationships between these components. The presence of significant interrelationships between environmental components is identified on Table 7.7.

Table 7.7 Presence of Interrelationships between Environmental Components

Component	Biodiversity, flora and fauna	Population and human health	Soil	Water	Air and Climatic factors	Material assets	Cultural heritage	Landscape
Biodiversity, flora and fauna		No	Yes	Yes	Yes	Yes	No	Yes
Population and human health			Yes	Yes	Yes	Yes	No	No
Soil				Yes	No	Yes	No	No
Water					No	Yes	No	No
Air and Climatic factors						Yes	No	No
Material assets							Yes	Yes
Cultural heritage								Yes
Landscape								

Section 8 Mitigation Measures

8.1 Introduction

Mitigation measures are measures envisaged to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing the Plan.

Various environmental sensitivities and issues have been communicated to the Council through the SEA, AA and SFRA processes. By integrating related recommendations into the Plan, the Council has ensured that both the beneficial environmental effects of implementing the Plan have been and will be maximised and that potential adverse effects have been and will be avoided, reduced or offset.

Furthermore, various provisions already in force through the existing Plan will ensure that environmental protection is contributed towards by implementation of the Plan as amended.

8.2 Integration of Environmental Considerations

All recommendations made by the SEA, AA and SFRA processes were integrated into the Plan.

One of the alternatives for the Proposed Amendment that was prepared early on in the process zoned lands within the River Nore and Barrow cSAC for built development. This original Proposed Amendment also zoned lands within Flood Zone A for non-compatible built development.

Based on these potential conflicts, the integration of environmental considerations into the site specific objective for the development of the lands was recommended. These recommendations were integrated into the Proposed Amendment by Kilkenny County Council.

Under the Proposed Amendment that is being placed on public display, protection of the cSAC shall be maintained by both the site specific objective and by the continued implementation of the provisions of the existing Plan which includes various measures to prevent any adverse effects upon the cSAC arising from adjacent development.

In addition, under, the zoning of Flood Risk Zones would remain unchanged. Any risk posed by development provided for by the Proposed Amendment would be mitigated by complying with both the site specific objective and by the continued implementation of the provisions of the existing Plan.

The site specific objective for the development of the Proposed Amendment is reproduced below. The key elements of this objective which integrate environmental considerations and which will facilitate protection and management of the environment are identified in green text.

Site specific objective for the development of the Proposed Amendment

To facilitate the development of a residential complex (10 units approx.) initiated by the Camphill Community with ancillary small scale socio-economic uses related to the activities of the residents of the development, and to provide for a pedestrian link from the lands to the town centre, subject to the following:

- The development must not interfere with the ecological integrity of the adjacent Kings River which forms part of the River Barrow and River Nore SAC, a Natura 2000 site. Any future development (including pedestrian link) of the lands will be subject to Appropriate Assessment in accordance with Article 6 of the Habitats Directive.*
- A site-specific Flood Risk Assessment appropriate to the type and scale of the proposed development and a site specific justification test if required must be submitted at planning application stage in line with the DoEHLG Guidelines "The Planning System and Flood Risk Management", November 2009. Residential use is excluded from Flood Zone B.*

- *Any developments proposed for the lands at Westcourt must be connected to the foul sewer network for treatment of waste water. Such developments will only proceed subject to the local treatment plant having capacity to adequately treat the additional load. It must be shown by proposals that all storm water can be appropriately collected, stored and treated so as not to affect the quality of water bodies.*
- *The archaeological importance of the site must be safeguarded by protecting archaeological sites and monuments (including their setting), and archaeological objects, including those that are listed in the Record of Monuments and Places, and in the Urban Archaeological Survey of County Kilkenny or newly discovered sub-surface archaeological remains. Any proposed development in the vicinity or confines of archaeological monuments will require an archaeological assessment and the preparation of an archaeological impact statement for submission as part of any planning application for development within this area.*
- *When innovative layouts and exceptional design for living are achieved, strict adherence to the development management standards for new residential developments as set out in Chapter 12 of the County Development Plan 2014-2020 will not be required, provided the proposed designs can be demonstrated to satisfy the social and physical needs of the occupants.*

8.3 Provisions already in force through the existing Plan

Provisions which are already in force through the existing County Development Plan 2014-2020 which will facilitate continued protection and management of the environment across the Plan area including at the Proposed Amendment site are detailed below.

Chapter 1

- 1A To implement the provisions of Articles 6(3) and 6(4) of the EU Habitats Directive.
- 1B To ensure that any plan or project within the functional area of the Planning Authority is subject to appropriate assessment in accordance with the Guidance *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities, 2009*¹⁷ and is assessed in accordance with Article 6 of the Habitats Directive in order to avoid adverse impacts on the integrity and conservation objectives of the site.
- 1C To implement the Development Management Standards as set out in the Plan as appropriate.
- 1D To prepare a Climate Change Adaptation plan following the adoption of the Development Plan.

Chapter 8 Heritage

- 8A To prepare and implement, in partnership with the Kilkenny Heritage Forum and all relevant stakeholders, a County Heritage Plan and County Biodiversity Plan.
- 8B To protect and, where possible, enhance the natural heritage sites designated under EU Legislation and National Legislation (Habitats Directive, Birds Directive, European Communities (Birds and Natural Habitats) Regulations 2011 and Wildlife Acts). This protection will extend to any additions or alterations to sites that may arise during the lifetime of this plan.
- 8C To protect and, where possible, enhance the plant and animal species and their habitats that have been identified under European legislation (Habitats and Birds Directive) and protected under national Legislation (European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011), Wildlife Acts 1976-2010 and the Flora Protection Order (SI94 of 1999).
- 8D To prepare and support the implementation of a Green Infrastructure Strategy for County Kilkenny.

¹⁷ *ibid*

- 8E To protect and where possible enhance wildlife habitats and landscape features which act as ecological corridors/networks and stepping stones, such as river corridors, hedgerows and road verges, and to minimise the loss of habitats and features of the wider countryside (such as ponds, wetlands, trees) which are not within designated sites. Where the loss of habitats and features of the wider countryside is unavoidable as part of a development, to ensure that appropriate mitigation and/or compensation measures are put in place, to conserve and enhance biodiversity and landscape character and green infrastructure networks.
- 8F Kilkenny County Council will promote the planting of native tree and shrub species, by committing to using native species (of local provenance wherever possible) in its landscaping work and on County Council property.
- 8G To protect and sustainably manage the landscape character of County Kilkenny, having regard to the findings of the landscape character assessment and the development management standards as set out in this chapter for the sustainable development of the county and appropriate conservation of its landscape character.
- 8H To preserve and improve places or areas from which views or prospects of special amenity value exist, as identified in Appendix H and on Figure 8.2.
- 8I Protect archaeological sites and monuments (including their setting), underwater archaeology, and archaeological objects, including those that are listed in the Record of Monuments and Places, and in the Urban Archaeological Survey of County Kilkenny or newly discovered sub-surface and underwater archaeological remains.
- 8J To facilitate and support the implementation of existing (and any further) conservation plans, as resources allow.
- 8K To ensure the protection of the architectural heritage of County Kilkenny by including all structures considered to be of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest in the Record of Protected Structures.
- 8L To carry out a review of the Record of Protected Structures.
- 8M To complete digital mapping of the Record of Protected Structures.
- 8N To promote principles of best practice in conservation and the use of appropriate materials and repair techniques through the administration of the Conservation Grants Scheme and the Structures at Risk Fund, funded by the Department of Arts Heritage and the Gaeltacht.
- 8O To provide assistance to owners of protected structures in undertaking essential repairs and maintenance by the provision of relevant information.
- 8P To respond to the Ministerial recommendation to include in the Record of Protected Structures, structures which have been identified as being of Regional, National or International significance in the National Inventory of Architectural Heritage survey of the city and county published in 2006, and to consider for inclusion those rated of local significance.
- 8Q To ensure the preservation of the special character of each ACA listed (Table 8.2) above and within the county particularly with regard to building scale, proportions, historical plot sizes, building lines, height, general land use, building materials, historic street furniture and paving.
- 8R To designate ACAs where appropriate and provide a local policy framework for the preservation of the character of these areas.

Chapter 9 Infrastructure & Environment

- 9A Implement the programme as outlined in the Water Services Investment Programme.
- 9B Meet in full the requirements of the E.U. [Urban Waste Water Treatment](#) and [Water Framework](#) Directives and the [Drinking Water Regulations](#).
- 9C To update Noise Mapping in accordance with revised or updated thresholds for Noise Mapping.
- 9D To promote compliance with environmental standards and objectives established—
for bodies of surface water, by the European Communities (Surface Waters) Regulations 2009;
for groundwater, by the European Communities (Groundwater) Regulations 2010; which standards and objectives are included in the South East River Basin Management Plan.

- 9E To complete the mapping of source protection areas and to map Source Protection Areas for any new public water supply schemes as appropriate.
- 9F To ensure that Source Protection Areas are identified for any multiple unit housing developments with private water supplies.
- 9G To adopt a comprehensive risk-based planning approach to flood management to prevent or minimise future flood risk. In accordance with the [Planning System and Flood Risk Management – Guidelines for Planning Authorities](#), the avoidance of development in areas where flood risk has been identified shall be the primary response.
- 9H To implement the Joint Waste Management Plan for the South East Region.
- 9I To control the following for the purposes of reducing the risk or limiting the consequences of a major accident:
- The siting of Major Accident Hazard sites
 - The modification of an existing Major Accident Hazard site
 - Development in the vicinity of a Major Accident Hazard site

Section 9 Monitoring Measures

9.1 Introduction

The SEA Directive requires that the significant environmental effects of the implementation of plans and programmes are monitored. This section details the measures which will be used in order to monitor the likely significant effects of implementing the Plan.

Monitoring can enable, at an early stage, the identification of unforeseen adverse effects and the undertaking of appropriate remedial action.

9.2 Indicators and Targets

Monitoring is based around indicators which allow quantitative measures of trends and progress over time relating to the Strategic Environmental Objectives identified in Section 4 and used in the evaluation. Each indicator to be monitored is accompanied by the target(s) which were identified with regard to the relevant strategic actions.

Table 10.1 overleaf shows the indicators and targets which have been selected for monitoring the likely significant environmental effects of implementing the Plan, if unmitigated.

The Monitoring Programme may be updated to deal with specific environmental issues - including unforeseen effects - as they arise. Such issues may be identified by the Council or identified to the Council by other agencies.

9.3 Sources

Measurements for indicators generally come from existing monitoring sources. Existing monitoring sources include those maintained by the Council and the relevant authorities e.g. the Environmental Protection Agency, the National Parks and Wildlife Service and the Central Statistics Office.

Internal monitoring of the environmental effects of grants of permission in the Council will provide monitoring of various indicators and targets on a grant of permission by grant of permission¹⁸ basis. Where significant adverse effects - including positive, negative, cumulative and indirect - have the potential to occur upon, for example, entries to the RMP, entries to the RPS or ecological networks as a result of the undertaking of individual projects or multiple individual projects such instances should be identified and recorded and should feed into the monitoring evaluation.

9.4 Reporting

A stand-alone Monitoring Report on the significant environmental effects of implementing the Plan will be prepared before in advance of the beginning of the review of the Plan. This report should address the indicators set out below.

The Council is responsible for the ongoing review of indicators and targets, collating existing relevant monitored data, the preparation of monitoring evaluation report(s), the publication of these reports and, if necessary, the carrying out of corrective action.

¹⁸ The likely significant effects of development proposals on environmental sensitivities are further determined during the development management process. By documenting this determination (e.g. whether a proposed development will impact upon a Protected Structure or whether a proposed development can be adequately served with water services) while granting permissions, or at a later date, the requirement to monitor the effects of implementing the Plan can be achieved.

9.5 Thresholds

Thresholds at which corrective action will be considered include:

- The occurrence of flood events;
- Court cases taken by the Department of Arts, Heritage and the Gaeltacht regarding impacts upon archaeological heritage including entries to the RMP;
- Complaints received from statutory consultees regarding avoidable environmental impacts resulting from development which is granted permission under the Plan;
- Boil notices on drinking water; and
- Fish kills.

Table 9.1 Selected Indicators, Targets and Monitoring Sources

Environmental Component	Selected Indicator(s)	Selected Target(s)	Source (Frequency)
Biodiversity, Flora and Fauna	B1i: Conservation status of habitats and species as assessed under Article 17 of the Habitats Directive	B1i: Maintenance of favourable conservation status for all habitats and species protected under national and international legislation to be unaffected by implementation of the Plan as amended ¹⁹ .	<ul style="list-style-type: none"> Internal monitoring of environmental effects of grants of permission (grant by grant). Department of Arts, Heritage and the Gaeltacht report of the implementation of the measures contained in the Habitats Directive - as required by Article 17 of the Directive (every 6 years). Consultations with the NPWS (at monitoring evaluation - see Section 9.4).
	B1ii: Number of significant impacts on relevant habitats and species	B1ii: Avoid significant impacts on relevant habitats and species.	<ul style="list-style-type: none"> Internal monitoring of environmental effects of grants of permission (grant by grant). CORINE mapping resurvey (every c. 5 years).
	B1iii: Number of significant impacts on the protection of species listed on Schedule 5 of the Wildlife Act 1976.	B1iii: No significant impacts on the protection of species listed on Schedule 5 of the Wildlife Act 1976	<ul style="list-style-type: none"> Internal monitoring of environmental effects of grants of permission (grant by grant). Consultations with the NPWS (at monitoring evaluation - see Section 9.4).
Population and Human Health	P1: Occurrence (any) of a spatially concentrated deterioration in human health arising from environmental factors resulting from development provided for by the Plan, as identified by the Health Service Executive and Environmental Protection Agency	No spatial concentrations of health problems arising from environmental factors as a result of implementing the Plan.	<ul style="list-style-type: none"> Consultations with EPA and Health Service Executive (at monitoring evaluation - see Section 9.4).
Soil	S1: Soil extent and hydraulic connectivity	To minimise reductions in soil extent and hydraulic connectivity.	<ul style="list-style-type: none"> Internal monitoring of environmental effects of grants of permission (grant by grant).

¹⁹ With regard to Natura 2000 sites there should be no significant effects except as provided for in Section 6(4) of the Habitats Directive, There must be:
(a) no alternative solution available;
(b) imperative reasons of overriding public interest for the plan to proceed; and
(c) adequate compensatory measures in place.

Environmental Component	Selected Indicator(s)	Selected Target(s)	Source (Frequency)
Water	W1: Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC	Not to affect the ability of groundwaters to comply with Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC	<ul style="list-style-type: none"> Internal monitoring of environmental effects of grants of permission (grant by grant). Data issued under the Water Framework Directive Monitoring Programme for Ireland.
	W2: Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC	Minimise developments granted permission on lands which pose - or are likely to pose in the future - a significant flood risk in compliance with <i>The Planning System and Flood Risk Management Guidelines for Planning Authorities</i>	<ul style="list-style-type: none"> Internal monitoring of environmental effects of grants of permission (grant by grant). Data issued under the Water Framework Directive Monitoring Programme for Ireland (multi-annual).
	W3: Classification of Overall Status (comprised of ecological and chemical status) under the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (SI No. 272 of 2009)	W3: Not to cause deterioration in the status of any surface water or affect the ability of any surface water to achieve 'good status' by 2015	<ul style="list-style-type: none"> Internal monitoring of environmental effects of grants of permission (grant by grant).
Material Assets	M1: Number of new developments granted permission which can be adequately and appropriately served with waste water treatment over the lifetime of the Plan	M1: All new developments granted permission to be connected to and adequately and appropriately served by waste water treatment over the lifetime of the Plan	<ul style="list-style-type: none"> Internal monitoring of environmental effects of grants of permission (grant by grant).
	M2: Number of non-compliances with the 48 parameters identified in the European Communities (Drinking Water) Regulations (No. 2) 2007 which present a potential danger to human health as a	M2: No non-compliances with the 48 parameters identified in the European Communities (Drinking Water) Regulations (No. 2) 2007 which present a potential danger to human health as a	<ul style="list-style-type: none"> EPA The Provision and Quality of Drinking Water in Ireland reports (multi-annual). EPA Remedial Action List (every quarter).

	result of implementing the Plan	a result of implementing the Plan	
	Minimise increases in and, where possible, reduce household waste generation	Maximise increases in packaging recovered (t) by self-complying packagers	<ul style="list-style-type: none"> EPA National Waste Reports EPA Ireland's Environment Reports
Air and Climatic Factors	C1: Percentage of population travelling to work, school or college by non-mechanical means	C1: An increase in the percentage of the population travelling to work, school or college by public transport or non-mechanical means	<ul style="list-style-type: none"> CSO Population Data (every c. 5 years).
Environmental Component	Selected Indicator(s)	Selected Target(s)	Source (Frequency)
Cultural Heritage	H1 Percentage of entries to the Record of Monuments and Places protected from significant adverse effects arising from new development granted permission under the Plan.	H1 Protect the zone of archaeological heritage and entries to the Record of Monuments and Places from significant adverse effects arising from new development granted permission under the Plan	<ul style="list-style-type: none"> Internal monitoring of environmental effects of grants of permission (grant by grant). Consultation with Department of Arts, Heritage and the Gaeltacht (at monitoring evaluation - see Section 9.4).
	H2 Percentage of entries to the Record of Protected Structures and Architectural Conservation Area and their context protected from significant adverse effects arising from new development granted permission under the Plan	H2 Protect entries to the Record of Protected Structures and Architectural Conservation Area and their context from significant adverse effects arising from new development granted permission under the Plan.	<ul style="list-style-type: none"> Internal monitoring of environmental effects of grants of permission (grant by grant). Consultation with Department of Arts, Heritage and the Gaeltacht (at monitoring evaluation - see Section 9.4).
Landscape	L1: Number of complaints received from statutory consultees regarding avoidable impacts on the landscape - especially with regard to landscapes which are most valuable and Scenic Routes and Scenic Views - resulting from development which is granted permission under the Plan	L1: No developments permitted which result in avoidable adverse visual impacts on the landscape from development which is granted permission under the Plan.	<ul style="list-style-type: none"> Internal monitoring of environmental effects of grants of permission (grant by grant).